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ORIGINAL ARTICLES.

MOVABLE KIDNEY.

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Uncomplicated movable kidney was first described by Riolan in 1649 and was even then characterized as *non sine vitæ detrimento*. But very little attention was paid to the subject, however, until the beginning of the present century, and even as late as 1859 Fritz could find records of but thirty-five cases. Since then a special literature has been created on the subject by the monographs of Rollet, Landau, Linder and Newman, and by a multitude of important contributions to medical periodicals, and the number of reported cases has become too large to be easily followed. There is, however, even now a very wide divergence of opinion with regard to the pathologic importance of movable kidney, and also with regard to its appropriate treatment. I think it is fair to say that very many medical and surgical authorities still hesitate, as does Mr. Tait, to attribute to the mobility of the kidney the varied train of symptoms with which it is so frequently associated; and in the matter of treatment, one may choose between the extreme views of Keppler, who advises immediate removal through the abdomen as soon as movable kidney causes any disturbance in the system, and of Newman and Drummond, who believe that in almost all cases an efficient external support will afford entire relief; or one may follow the vast majority of recent writers in accepting nephrorrhaphy as the simplest, safest and surest remedy. In view of the still unsettled opinion which prevails with regard to these questions, I have ventured to introduce the subject for your consideration by reporting as briefly as I can, two of the six cases of movable kidney which have come under my own observation; both present histories that seem to me of rather unusual surgical interest, and a sufficient time has now elapsed to enable us to judge something of the permanency of the results:

Case 1.—Mrs. K., 29 years old, was admitted to the Worcester City Hospital Nov. 5, 1891. Until within seven months, she had always been well and strong; had been married five years, but had never been pregnant. For seven months past had had pain in the right side of the abdomen, and in the region of the umbilicus, severe enough to prevent her from doing any but the very lightest housework. The pain had increased gradually but steadily, and, what was especially interesting, had been worse when in a recumbent position. She was a stout, healthy-looking woman, who had evidently been accustomed to hard work. Examination of right side over painful area revealed an oval tumor, hard, freely movable, as large as the closed fist. It could be moved easily into the median line, down to the level of the umbilicus and would, if depressed, disappear up under the ribs. Pressure occasioned a peculiar sickening feeling, with nausea and faintness. The urine had a specific gravity of 1008, the twenty-four hour amount was forty-seven ounces and there was no albumin. Diagnosis: right movable kidney. On the 23d, I did nephrorrhaphy through an incision three inches long, extending from the top of the twelfth rib downward and forward. The surface of the kidney was scarified and three stout chromicized catgut sutures were passed through the edges of the wound and through the capsule or cortex of the kidney, one-fourth of an inch from its outer border. The wound was closed around a rubber drainage tube, which was removed the third day. At the end of two weeks, she was entirely free from pain in her right side, and at the time of her discharge, four weeks later, there had been no recurrence. She did, however, during these last four weeks, have very severe and unaccountable pains in her left side. Two months later she presented herself at my office, saying that she felt perfectly well, so far as her right side was concerned, but continued to have more and pain in the left side, and had discovered a bunch similar to the one which had existed on the right. She further said that just before the first operation, while lifting a stove, she had felt something give way in her left side and had had considerable pain for several days. Nothing, however, was said about this at the time, nor during her convalescence. The left kidney could be distinctly felt, dropping downward and forward nearly to the umbilicus. The right seemed firmly fixed. I advised her to wear a firm abdominal support, and did not see her again until April. Her own testimony, and her mother's, showed plainly that she had been much better since the first operation. She had gained ten pounds in weight and had been able to do much more work about the house. Still if on her feet very long, or if she tried to walk much, she suffered from pain referred chiefly to the region of the umbilicus. She could not turn over in bed, or make any quick motion, whether lying down or standing, on account of pain in the left side which she described as sharp, hard, and very like the pain in the right side before the operation. For two or three weeks past had noticed some pain in region of right kidney. The left kidney could be easily felt and was rather more movable than at previous examination. The right one was just palpable beneath and below the margin of the ribs and could be made to slip back against the posterior wall. No relief having been obtained from the abdominal supporter, I sutured the left kidney on April 10, 1892, through an incision similar to that made use of before. I found it even more movable than the right had been and could push it easily down to the brim of the pelvis. Three sutures of silk, instead of catgut, were passed exactly as in the first operation, a drainage tube inserted, and the wound closed. I allowed the tube to remain a week and the sutures a week longer. She remained in bed four weeks, and although having some dragging pain on the right side, was entirely free from pain on the left.

I heard from her nearly two years after the second operation. There had been no recurrence of pain on the left side nor about the umbilicus. She had occasionally some dragging uncomfortable sensations in the right loin, but considered herself entirely well, had gained much in weight, and was doing all her own housework.

Case 2.—Unsuccessful nephrorrhaphy followed by nephrectomy. Mrs. R., 41 years old, was referred to me by Dr. E. M. Frissell of Webster, Dec. 2, 1891. She had two children aged 18 and 14 years, had had one miscarriage thirteen years ago, and a second one, one year ago. She was always frail, had had more or less dyspepsia for twenty-five years, and about the time that her dyspepsia began, she had several hysterical seizures which lasted from three to five hours each and made her almost insane. For two years she had felt a drag-

ging pain in the right side with severe paroxysms of short duration; excited especially by any sudden movement of the body. She was soon rendered incapable of attending to her own work and was obliged to lie down most of the time. In June, 1890, a diagnosis of movable kidney was made at the Massachusetts General Hospital, and a support applied which afforded only a very temporary relief. Her condition became steadily worse and at the time when she was sent to me she had not been out of the house for many months and could walk but very little, was nervous and hysterical and constantly dependent upon morphin and stimulants. There was upon the right side a movable tumor of renal outline, somewhat larger than a normal kidney. It would slip back under the rib, but could be easily brought within reach by firm pressure over the lower part of the thorax and on coming forward superficially against the abdominal wall could be carried down to the umbilicus. Firm pressure elicited the same sickening feeling with pain, nausea and faintness observed in the previous case. On Dec. 5, 1891, I operated through the usual oblique lumbar incision, using six carbolized catgut sutures. I tried to place them so superficially as to include only the capsule, and I am sure that I did not obtain a firm hold upon the kidney. She was able to be up in a wheel chair at the end of two weeks, and on December 29 returned home. She remained perfectly well and free from pain and from dyspeptic symptoms until the following April, had gained nine pounds in weight and been about among her friends more than for years. In April, however, she began to lose flesh and strength and to suffer so much from pain that she was again confined to the house, and most of the time to her bed or couch. She had severe paroxysms of sharp cutting character, beginning in the right lumbar region and shooting down into the right hip. Morphin and stimulants were again freely used, and she had some trouble with her stomach, though not so much as formerly. During the summer she began to feel the same old lump, and in December, 1892, came to me for a second operation. At that time, the kidney could be felt exactly as before. I operated on December 11, this time through a vertical incision from the tip of the twelfth rib. There were some old adhesions between the kidney and the lumbar muscles, but they were so long as to permit of free mobility in all directions. I followed this time the method of Edebohls, splitting the capsule along the outer border of the kidney and folding back a strip about one-fourth of an inch wide on each side. Five silkworm gut sutures were then passed through the deep fascia on the outer side of the wound, through the double layer of the capsule, the renal substance, out through the double layer of the capsule on the posterior surface of the kidney and up through the deep fascia again on the inner side of the wound. These closed the deep wound and brought the inner surface of the capsule and the denuded surface of the kidney firmly against the deep fascia. The superficial wound was then closed and no drainage used.

Convalescence was even easier than from the first operation, although the patient was kept in bed for several weeks, in the hope of favoring stronger adhesions. So fearful was she of dislodging the kidney again, that although free from pain except a dragging sensation in the right side, she could not be persuaded to move about except in her chair, and it was two or three months before she would even walk across the room. She continued very nervous and apprehensive until June, when pains returned again as severe as ever and she felt sure that the kidney was again movable. Severe paroxysms of intense nervousness began to appear more and more frequently with other hysterical manifestations, and she again resorted to morphin and stimulants in still larger quantities. So deplorable had her condition become that I was besought by her friends and by herself to remove the kidney altogether, and in December, 1893, she reëntered the hospital for that purpose. Her general appearance was better than at the time of either of the previous operations. The kidney could be readily felt through the abdominal wall and seemed to be movable, though within a much smaller area than before. It was removed through a vertical incision, without difficulty, the vessels ligatured separately, and as a whole, and the wound closed. Upon exposing the kidney, deep in the wound were found the old buried silkworm gut sutures still intact, and there were intimate fibrous adhesions holding it firmly against the transversalis fascia. Its apparent mobility was due simply to the reflaxed flabby condition of all the tissues. A sinus persisted for some weeks after the operation, from which were afterward removed the silk ligatures and several of the old silkworm gut sutures. The wound healed immediately afterward and she returned to her home in January, 1894. She has since then remained almost perfectly well, free from all hysterical manifestations, stronger, able to do more work and to be about more among her friends than she had been for years before.

Case 1 is interesting, in the first place, as one of double nephrorrhaphy, of which, as will be seen by the accompanying Table A, I can find but five instances. It is also interesting because of the absence of all those vague and troublesome symptoms which often accompany movable kidney, such as the gastro-intestinal disorders and the manifold symptoms of neurasthenia. The disability was in this case purely the result of pain, and pain referred to regions of the kidneys alone, and apparently dependent entirely upon their mobility. To the absence of these other indefinite and very troublesome symptoms, as well as to the absence of the more commonly recognized causes of movable kidney, such as rapid emaciation, repeated pregnancies, relaxed abdominal walls and ruptured perineum; to the absence of all these is due the very satisfactory and permanent result of the operations. The trouble on the left side seemed clearly the result of overstrain. That on the right could be attributed only to hard work, but whatever the cause, the important feature is, I think, that the symptoms on both sides were purely local, and I am very sure that the more these local symptoms are complicated by, or result from, other general or constitutional conditions, especially disorders of the nervous system, by just so much the greater will be the probability of failure from the operation.

This, it seems to me, was exactly the trouble with the second case. The failure of the first operation was due to a faulty technique. I used plain carbolized catgut for my sutures and tried to place them in the fibrous capsule of the kidney, to avoid as much as possible passing them into the substance of the kidney itself. Chromicized gut would have been better, but even that is decidedly inferior to silk, kangaroo tendon or silkworm gut, and the sutures should be passed directly through the substance of the kidney. Whether splitting and reflecting the capsule as proposed by Edebohls and practiced in the second operation, is necessary or not, I do not know. In a thin subject it is easily done but in a stout one it presents many difficulties, and its added efficiency is at least doubtful. The failure of the second operation is, I think, exceedingly interesting and instructive. Upon reopening the wound one year later, the kidney was found firmly fixed to the muscles of the back in a position but little lower than that which it would normally occupy. The silkworm gut sutures were found after the lapse of the year just where they had been placed relatively to each other, but no longer passing into the renal tissue. I could displace the kidney only so much as I could move the deep muscles and fascia, but so thin had the patient become that I could easily feel it from the front, and could push it up into considerable prominence. Strictly speaking, however, there was no independent mobility of the kidney. Still, after a lapse of several months, all her symptoms had returned, if possible more aggravated than before, and this was as true of the local symptoms referred to the kidney itself as it was of the more general and more serious manifestations, dependent upon a disturbed nervous and mental organization. After the first failure, I think she had come to look upon the kidney as her natural enemy and was encouraged by the advice of friends to believe that its removal was the only

DOUBLE NEPHRORRHAPHY.

Case.	Authority.	Sex.	Age.	Symptoms and History.	Operation.	Results.
1	Lindner. Ueber die Wanderniere der Franen, Berlin, 87, ii, p. 507.	F.	35	Five years ago fell on ice. Severe abdominal pain, especially in region of kidneys, and associated with much emaciation. Both kidneys easily palpated.	Simultaneous operation on both sides.	Patient up in four weeks; same troubles returned a few weeks after operation, and patient died one year later of melancholia and insanity.
2	T. M. Rotch. Boston Med. and Sur. Jour. 1892, cxxvi, p. 522.	F.	27	Severe headaches with occasional nausea and vomiting for ten years. For two years abdominal pain, relieved by lying down, referred to coccyx, both inguinal regions and back. Occasional palpitation, constipation, dyspnea, dizziness and frequent micturition.	Left kidney sutured Sept. 22, 1891, and right Nov. 7, 1891.	Feb. 21, 1892. Patient still complained of various nervous aches and pains, but the nausea, sense of weight in the abdomen and headaches were relieved.
3	Tillmann. Deutsch. Ztschr. f. Chir., xxxiv. Festschr. c. Thiersch., Leipzig, 1892, p. 634.	F.	49	Vide case No. 3 in table No. 2.	. . . . .	. . . . .
4	Edebohls. New York Jour. of Gyn. and Obst., 93, iii, 588.	F.	39	Suffered for ten years; frequent painful micturition, occasional complete suppression. Right kidney movable 12 cm., left 10 cm.; both normal in shape and size.	Simultaneous operation on both sides.	The symptoms, nervous, gastro-intestinal, genital, vesical and urinary, which had existed so long, had almost entirely disappeared after the operation.
5	The same.	F.	26	Dysmenorrhea, pain in left ovarian region, general pelvic distress, intolerable bearing down sensations, no hysteria. Right kidney displaced downward 15 cm.; left 13 cm.	Simultaneous operation on both sides.	Uneventful recovery, too early to determine permanent results.

NEPHRECTOMY AFTER UNSUCCESSFUL NEPHRORRHAPHY.

Case.	Authority.	Sex.	Age.	Symptoms and History.	Operation.	Results.
1	Kummel. Deutsch. Med. Woch., 1887. No. 4, p. 963.	F.	60	Acute pains for one year, occasioned by movable kidney; was much emaciated; slept little; had acquired opium habit.	Nephrorrhaphy by suture through renal substance—pains returned in one month. The kidney still in place and fixed. Nephrectomy June 26, 1877.	Pains all ceased after four days. No subsequent report.
2	Agnew. Philadelphia Med. News, Jan. 29, 1887.	M.	32	In 1878 felt something give way while working; since had severe pains in lower region, paroxysmal, intensified by work. Some albuminuria, no casts. L. Kidney easily felt and moved.	Nephrorrhaphy with stitches thro' capsule, old symptoms returned in less than a year, much worse; kidney again worse. Nephrectomy by lumbar route, April 23, 1885.	"Remains well up to present time," i.e., 1887.
3	Tillmann's Deutsch. Ztschr. f. Chir., xxxiv—Fistschr. a. Thiersch, Leipzig, 1892, p. 634.	F.	49	Wandering kidney on both sides; in bed for twenty-five years; walking or standing caused severe abdominal pain. Had a laparotomy for supposed ovarian tumor then formed, then ventral hernia and later floating kidneys.	R. Nephrorrhaphy May 19, 1889. L. Nephrorrhaphy Sept. 11, 1889. Six months later left kidney again worse; lumbar nephrectomy in May, 1890.	Remained hysterical and died 2½ years later from inter-current affection.
4	M. Juinne. Bull. et Mem. Soc. de Chir. de Paris, 1891, n. s. xviii, p. 533.	F.	25	Violent, painful convulsions and frequent desire to urinate, and diminished urine. Origin in the lumbar region. Convulsions last intermittently three or four days and recurred several times a month, with vomiting and fever.	Nephrorrhaphy; for one month no convulsion, pains returned and pus in urine; nephrectomy three months later, kidney firmly fixed and normal.	Temperature became normal and pus disappeared. No late result.
5	L. H. Dunning. Am. Jour. of Obstetrics, Dec., 1894, p. 891.	. .	.	Pain, vomiting. Bedridden for four years.	Nephrorrhaphy; pains and vomiting unrelieved; then lumbar nephrectomy.	Pain entirely relieved. Vomiting persisted several months, then gradually disappeared. Now, at end of eight years, in comparatively good health.

chance of permanent relief. She was continually feeling for it and trying to find it, and when at last she did find it, even though it was not movable, the whole train of symptoms naturally followed. The presence of this neurasthenic or hysterical condition is the most important point of contrast between these two cases, and it is just this that, in my opinion, made the difference in the results. I must confess that I did the nephrectomy with very great reluctance, and that I felt very skeptical of its result. I have, however, been happily disappointed and have been pleased to learn, as I shall hope to show you a little later, that the operation has in other hands succeeded where nephrorrhaphy has failed, and that under such circumstances it has a legitimate place, offering a reasonable prospect of final success. In the present case, this relief has continued long enough, I think, to warrant the prediction that until some other local disorder shall destroy her nervous balance it will remain permanent and complete.

It has always seemed very strange to me that the literature of movable kidney contained so little reference to the association with it of a strongly neurasthenic habit or temperament. Morris, Newman, and the recent systems of surgery hardly mention it. Nowhere, so far as I can discover, has there been any satisfactory study of the relations of the movable kidney to its accompanying neuroses. Four of the six cases which I have observed have certainly presented two very different groups of symptoms; one group consisting of pain, tenderness with dragging sensations, with sense of weight and fullness in the hypochondrium, all symptoms directly referable to the kidney itself; and a second group made up of loss of flesh and strength, palpitation, various gastric and intestinal disturbances, ovarian and uterine

neuralgia, dysmenorrhea, and other evidences of permanent neurasthenia, accompanied in one case by a condition of mental depression amounting at times almost to insanity. Whether this second group of symptoms is a cause or a result of movable kidney, I am not able to determine. I feel very sure that it is more than a coincidence. Of the thirty-one cases reported by Drummond, he says. "twenty-two were exceedingly nervous and might very properly be described as decided neurotics, and it is noteworthy that these were the cases in which the dyspeptic symptoms were most marked. . . . So often is a marked nervous habit to be met with in cases of movable kidney with symptoms, that I have been led to ask myself the question, Would the symptoms arise were it not for the neurotic tendency even with a pronounced degree of ectopia? It must, I think, be admitted that in the great majority of cases they would not. But that the kidney condition determines the region and distribution of the disturbance, there can no doubt, and further, it would seem that in some cases at least it is the cause of the neurotic temperament." These functional neuroses accompanying movable kidney seem to me to be identical with those so commonly observed in cases of ovarian neuralgia where the ovaries seem perfectly healthy, and also identical with the neuroses so often associated with coccydynia. Surgically, they are of the utmost importance in determining the prognosis and treatment. Whenever they are absent, as in the first of the cases I have just reported, I think nephrorrhaphy may be undertaken with very positive assurances of success. When present, they lessen very much the probability of securing permanent relief. In the event of failure, nephrectomy, as is illustrated by our second case, still offers some hope of a favorable result, but even that, like the removal of the ovary and the coccyx is often unsatisfactory.

Since the introduction of nephrorrhaphy, nephrectomy for the relief of uncomplicated movable kidney has met with but little favor. Suture of the kidney not only is easier and very much safer, being attended by a mortality that is almost *nil*, but it seems to meet more perfectly the indications for surgical interference. No one now credits the dictum of Keppler, that a movable kidney is in itself a menace to its possessor's life, and should be immediately removed. On the contrary, the prevailing surgical opinion is rather that of Landau and Mr. Knowsley Thornton, who regard the "removal of a kidney simply because it floats or is mobile, as quite unjustifiable." In fact, I think most surgeons would go a step further than Mr. Thornton, and say that no operation should be undertaken on a healthy kidney simply "because it floats or is mobile." It is only when by its mobility it occasions symptoms that interfere with one's ordinary occupation or habit of living that any operation is indicated. Nephrorrhaphy is then certainly the operation of choice, but in the event of its failure, nephrectomy is, I think, not only a justifiable but a reasonable procedure as is illustrated by the second case here reported. I have further collected five other cases, as will be seen by the accompanying table, in which the failure of future has been followed by the successful removal of the kidney. One of them in which the nervous symptoms were especially prominent is reported as having remained hysterical until the time of her death, two and one-half years later from some intercurrent affection. Agnew's case remained well nearly two years after the removal of the kidney, and Dunning's was in comparatively good health eight years after operation, while the remaining two cases were immediately relieved of their symptoms, but were reported too early to give permanent results. These cases are too few and the records too meager to enable us to draw any positive conclusions. They are more than sufficient, however, I think, to justify us in attempting a radical operation when the simpler alternatives have failed.

In calling your attention to this subject by reporting these two cases, I have been actuated by the desire to emphasize more particularly two factors in the consideration of movable kidney, which are, it seems to me of very great importance, and which do not often receive the attention they deserve. They are: 1, the frequency with which movable kidney is associated with a marked and very distressing neurotic habit and under these circumstances nephrorrhaphy is often unsuccessful; and 2, the possibility of securing permanent relief by nephrectomy when nephrorrhaphy has failed.

APPENDICITIS.

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From my experience in appendiceal work, and particularly during the past year, I feel that I have a right to make a further contribution upon this much debated subject. Notwithstanding the vast amount of literature which has appeared, and the numerous discussions which have occurred upon this subject in the past twelve months, I regret to say that there are still too many skeptics, first as to the prevalence of the affection, and second, as to the importance of the only curative treatment, namely, operation. I had hoped that the nomenclature of this subject had been definitely settled and that appendicitis was the accepted term for inflammation in the right iliac fossa, which we now know invariably originates within the appendix, but a recent article by Frederick Treves in the *British Medical Journal* describes appendicitis under the headings, typhilitis and perityphlitis, terms no longer accepted by American surgeons.

As I have before remarked, the diagnosis of appendicitis is not a difficult one to make. I must confess I have been astounded when attacked by a few prominent clinicians on making the above statement. The history of onset in the great majority of cases of acute appendicitis, as well as in acute attacks supervening upon an already chronically inflamed organ presents a picture, the outlines of which are so striking that if once seen it must be everlasting.

The initial pain, the gastric disturbance, the point where the tenderness to touch is most intense, the torpid bowel, all these following closely upon either the ingestion of indigestible substances or the ingestion of digestible substances, if the integrity of the lining membrane of the digestive tract has been disturbed, as by sudden exposure to cold, fright, grief, etc., these symptoms, I say, form the background of such a picture.

The rigidity of the abdominal walls of the lower

right quadrant of the abdomen, nausea if not vomiting, the disposition to flex the thighs upon the abdomen, the limited abdominal respiration, the increased pulse rate, the elevation of temperature, the intense thirst, the pain referred to the back, the abdominal distension, complete the picture in detail. There is now left the finishing touch, which is true in both senses of the word, that of locating the inflamed organ by palpation. While the tenderness early in the attack is diffuse, yet the point of greatest tenderness can, by careful examination, be most clearly defined over the position held by the appendix.

The etiology and pathology of appendicitis being intimately associated, I have thought it best to describe them together.

From my experience in the past year I have no reason to change the views expressed in former articles regarding the etiology of this affection. I still believe that there is a certain proportion of cases of appendicitis in which foreign bodies are an active factor in its production, when a catarrhal condition of the mucous membrane already exists and, especially when associated with it is the bacterium commune coli. Foreign bodies may, however, remain and cause little or no disturbance until some indiscretion in diet or exposure to cold or dampness excites a catarrhal condition, when their presence adds to the irritation thus produced and prevents drainage of the organ by occluding its lumen. They are the important factors which favor ulceration of the walls of the appendix and perforation or even gangrene of the entire organ.

Occlusion of the lumen of the appendix may also result from one of the following conditions: a very long meso-appendix, a shortened meso-appendix, a meso-appendix due to infiltration, containing an excess of fat, adhesions, thickening of the mucous and sub-mucous coats or displacement of adjacent viscera.

All inflammations of the appendix are septic; consequently, drainage is essential for a spontaneous recovery from an attack. The mucous membrane of an appendix beyond the point of obstruction undergoes structural changes which render otherwise innocuous materials (bacteria, etc.,) actively malignant and thus favor migration.

In cases of chronic appendicitis, a catarrhal condition of the mucous membrane of the appendix primarily renders it predisposed to slight irritation and though macroscopically and microscopically the mucous membrane of such an appendix would show but little evidence of disease, this is clinically disproved. I have seen cases of recurrent appendicitis where all the symptoms disappeared after the removal of the appendix, which showed but slight disease of the mucous membrane.

I recall one case in particular, where the patient had been an invalid for seventeen years. The removal of the appendix which was small, and the mucous membrane which showed but slight pathologic changes, was followed by a prompt disappearance of the symptoms. This patient is to day perfectly well and leading a comfortable and happy life.

Many of the cases of chronic intestinal indigestion of both the catarrhal and the nervous type, also cases of chronic enterocolitis and colitis, I maintain are due to structural changes found in the appendix, which I have removed for the relief of one or more of these various conditions.

The appendix is a highly organized structure, as much so as is any portion of the alimentary canal. It possesses the same number of coats, has its individual mesentery and is equally as well supplied with blood vessels, nerves and lymphatics as are the intestines. The point of essential difference, however, is that it has but one opening and this is the reason that inflammations of this organ are of so destructive a character and hold a place second to no other intra-abdominal inflammation.

Catarrhal inflammations of the appendix are very common, but heretofore have not been recognized as attacks of appendicitis. When the inflammation is more marked there are other factors which enter into the case. If the bacillus coli communis is present in a virulent form or is associated with the staphylococcus we have an infective appendicitis which is of the virulent type; when this condition is associated with a fecal concretion or other foreign body causing pressure, necrosis occurs and we have perforation. In infective appendicitis we frequently find minute points of suppuration in the mucosa; these foci start in the glands which are infected and then suppurate. The virulent bacilli can and do migrate through the walls of the inflamed appendix and cause suppuration around the organ without perforation.

The termination of an attack of the infective variety of appendicitis depends upon the direction which the bacilli take. If they pass into an appendix whose lumen is not encroached upon, the attack may terminate favorably. If the migration is through the walls into the right iliac fossa, suppuration about the organ occurs and we have a peri-appendiceal abscess, or a general infective peritonitis. This is the awful uncertainty, and places upon the physician a terrible responsibility. In support of my position, I will simply refer you to the statistics of the early operative treatment and to those of the so-called conservative or expectant treatment.

This is the view I have held, and when the opportunity has presented itself acted upon, and I have yet to record the first death where the appendix was removed in the early stage of the acute attack.

The personal equation in the resistance to septic absorption is a matter of the greatest importance and one which figures conspicuously in appendicitis. Two cases, in which there is, as nearly as it is possible to demonstrate pathologically, a parallel condition of affairs, may show very different degrees of infection; one patient will be profoundly septic while the other will show but slight evidences of poisoning. This fact must be understood and borne in mind by the physician in attendance upon a case of appendicitis; otherwise he will be less likely to appreciate the responsibility of his position.

The symptoms of appendicitis present such a vivid picture clinically that I can not conceive how, ordinarily, they could be misinterpreted. The cramp-like pain in the epigastric or umbilical region, which ushers in the initial symptoms of this affection, is severe and usually constant, although it may be intermittent, and is associated with nausea, vomiting and extreme restlessness. The pain may be referred to these regions for a period ranging from one to twenty-four hours, but later is confined to the iliac fossa where it manifests itself in wave-like paroxysms. With the advent of general peritonitis the pain becomes diffused. The nausea and vomiting

usually cease in favorable cases after the pain is referred to the region of the appendix. In unfavorable cases it becomes regurgitant and persists until the end.

Rigidity of the abdominal walls which in the majority of cases is most marked on the right side, occurs before the pain localizes itself in the right iliac fossa. There is usually constipation but occasionally diarrhea. Where constipation persists it is due to one of two causes, either an intestinal paresis of septic origin or the use of opium.

Tenderness is the most important symptom of appendiceal inflammation. Deep palpation over a normal appendix will not elicit tenderness. There is only one condition which renders difficult or impossible the palpation of an appendix, viz., marked tympanites. Tenderness may also be elicited through the rectum in the male, and the vagina and rectum in the female, when the appendix is directed into the pelvis. The point of greatest intensity of tenderness is over the inflamed appendix. Excruciating tenderness indicates pus, and in some cases is elicited only by vaginal or rectal examination.

Temperature and pulse rate in moderately severe cases bear no relation to the amount of disease going on within. I have seen cases with abscess and even perforation in which the pulse rate and temperature were normal. These are explained by the various pathologic conditions found in the peritoneal cavity in appendicitis. A sudden fall of temperature in acute cases should be looked upon with suspicion, as this only too often indicates perforation of the appendix.

The ordinary form of appendicitis is readily diagnosed, but I have met with some variations which have been misleading and puzzling; cases in which the pain has been referred to the left side, to the spleen, to the bladder and to the testicle.

The history of attacks is at times indistinct, one being frequently only able to get a story of a chain of vague symptoms which patients refer to as an attack of cholera morbus. Again, I have seen cases in which a persistent colitis or entero-colitis, were the only clews to the real cause of the trouble. There is one symptom, however, which is constant and that is tenderness; this, in the majority of cases is accompanied by a palpably enlarged appendix. If one palpates the right abdomen of patients who suffer from dyspepsia, entero-colitis, or colitis with or without histories of attacks of appendicitis, the number of tender, enlarged vermiform appendices he discovers will astonish him. The following case will illustrate: Miss W., age 16; no history of an attack of acute appendicitis; had been suffering for some time from a severe colitis. Her appendix was tender and was easily palpable. I advised its removal. We found the appendix constricted and indurated at its extreme tip, bound by adhesions to the surrounding bowel, and the omentum adherent to the outer wall of the cecum. The appendix contained pus. I have come to the conclusion, after a varied experience in appendiceal work, of accepting the histories of attacks of cholera morbus as those of acute attacks of appendicitis and have yet to see the first operative case presenting such a history which did not substantiate this belief.

The diagnosis of appendicitis can be made early, and when made, should be followed by operation for the removal of the inflamed organ. A case of *bona fide* appendicitis should not be allowed to go to the point of suppuration. A point upon which all authorities on this much debated question agree is that there is no sign or symptom, class of individuals, age, or time of disease which foretells perforation, gangrene and pus. No man can tell how the case may proceed from hour to hour and therefore the only logical conclusion at which one of experience can arrive is immediate early operation.

The prognosis depends not only upon the character of the attack and the complications which may supervene, but especially upon whether or not an early operation is done. In other words, the earlier the operation is performed the better the prognosis.

When the collection of pus is circumscribed and the general peritoneal cavity walled off, the prognosis is generally favorable. If the general peritoneal cavity be infected the prognosis is grave, although if operation is at once resorted to there is a possible chance of recovery; while if the infection be late or operation deferred, a fatal termination is invariably the rule. When a circumscribed appendiceal abscess ruptures and evacuates its contents into the bowel, recovery from the attack usually follows, while evacuation into the bladder is fatal in about 50 per cent. of the cases. The age of the patient is a decided factor in the prognosis, as the disease is more fatal in the very young, on account of the slighter powers of resistance.

Appendicitis is a surgical affection and should be so treated. The first question which arises after the diagnosis has been established is the character of the attack and what will be the probable outcome? It is here that we come up against the stone wall of fact, backed up with logical conclusion based upon experience. We can not say positively which case or class of cases will recover from an attack and which will go on to suppuration, gangrene and perforation. The question is, Shall we guess, and run the risk at the patient's expense? or shall we accept the only other alternative and remove the organ at the incipiency of its inflammation? The operation has been performed so often by skilled surgeons with a mortality of 1 to 2 per cent. and in many instances without a death, that there is absolutely no ground for attacking the procedure upon the score of fatality. Hernia is not a frequent sequence of abdominal section and is not the bugbear it is thought to be by the opponents of the knife. We can not accept objections to scientific procedure, upon the score of prejudice or on general principles, but must meet facts with facts.

A record of 100 appendisectomies with one death and no hernias speaks for itself. The records of McBurney, Richardson, Fowler, Murphy and others stand out like the "handwriting on the wall," to substantiate the scientific wisdom of early operation, and to stamp delay as dangerous and unscientific.

Early operation is a conservative and not a radical procedure. We are not governed by the same reasons that influence us to perform the radical operation for the cure of a simple hernia, or for the removal of the uterine appendages for a fibroid. But we see before us the probable consequences of allowing suppuration, gangrene and perforation to occur in the peritoneal cavity which may or may not be protected by nature's kindly action.

The proportion of cases of appendicitis which have one attack, then become perfectly well and are

cured of the disease, is so infinitely small, compared to those which have repeated attacks with an interval of invalidism, that I do not believe the rare exception should interfere with the rule.

One of my recent cases had had three attacks, with the interval filled in with gastro-intestinal uneasiness and tenderness over the appendix, increased by the slightest dietary indiscretion. He decided he would be operated upon as he considered the risk of another attack far greater than that of operation. On the day of operation he remarked that the tenderness was less pronounced than at any time for three months previous.

The appendix which lay behind the cecum and colon, first observed a northerly and then a southerly direction, making an acute flexion; it was firmly bound down by strong adhesions. The omentum was adherent to the base of the organ as well as to the cecum. An interesting feature in the case was the presence of a neighboring knuckle of small bowel which was anchored to the base of the appendix by an adhesive band, causing an acute flexion. This condition would have been capable of producing an attack of acute mechanical intestinal obstruction upon the slightest provocation. The appendix was thickened and contained pus. It is now four weeks since the operation, and he says he has no dyspeptic trouble and feels the first relief since his initial attack nine months ago.

The early operation is, as a rule, a comparatively simple abdominal procedure. The operation at the end of an attack or during the interval between attacks is usually more difficult than when done very early in the attack before adhesions are formed. After pus has formed, an operation for the removal of the appendix calls for the best judgment and skill, along with experience in this particular line of work. One meets with pus which has originated in an appendiceal inflammation, in every conceivable part of the peritoneal cavity, and only too frequently the entire cavity is invaded.

The appendix holds a northerly position in so large a percentage of cases that it is common to meet with many cases of acute appendicitis in which the purulent collection is post-cecal or post-cecal and post-colic. In this class of cases I invariably remove the appendix. With the proper abdominal technique, an important part of which is the disposition of the sterile gauze by which the greater peritoneal cavity is temporarily sealed off, the risk of infecting this membrane is reduced to a minimum. To one whose experience in this class of cases has not made him expert, I would strongly urge that having opened the peritoneum in cases of this character, and recognizing the position of the swelling, that it is far safer for him to immediately close the abdominal wound and complete the operation by draining the collection through the loin space. This is not only feasible, but at the same time safer than to take chances on exposing the peritoneum to contact with pus, of the character which is generated in connection with appendicitis. In those cases where the abscess points anteriorly, one of two procedures is to be followed out; evacuation without any attempt to remove the appendix, or, first carrying an incision through the abdominal walls to the inner side of the collection, in this wise opening the general peritoneal cavity, which is to be protected with sterile gauze, to be followed by a second incision down over the most prominent part of the swelling. The pus is evacuated, the cavity then washed out thoroughly, and the appendix removed. This latter plan of operation should only be practiced by a surgeon who is an adept in this line of work.

When the general peritoneal cavity has been protected in the manner referred to, the appendix removed and the wound cleansed, the first packing of gauze is to be withdrawn and replaced by a fresh piece which is allowed to remain *in situ* for two or three days, the time depending upon circumstances. By a strict observance of this step in the technique, the peritoneum can be left permanently sealed off. This anticipates nature's means of closing off the abscess cavity by adhesive inflammation. When the permanent gauze packing has been removed, the wound is closed by sutures introduced at the time of the operation.

I do not consider the evacuation of an appendiceal abscess without removal of the appendix in any way curative. On the contrary, experience has taught me that these cases are equally liable to recurrent attacks. I have operated for removal of the appendix upon too many cases, with such a history, to regard the simple evacuation of the pus other than merely palliative. Cases in which the abscess has ruptured into the colon and the rectum, suffer from subsequent attacks and for these during the quiescent period I have removed the appendix. In only a small percentage of the appendices removed under these circumstances do we find evidence of a previous perforation. From our knowledge of the pathology of this subject we know that perforation is not necessary for pus formation.

I take this opportunity of adding a remonstrance against the median incision in the operation of appendicitis. The number of cases are limited where this route offers any advantage. In the majority of cases, therefore, and from this we must reason, it is contra-indicated, first, on anatomic grounds, second, on the ground that the peritoneal cavity can not be so well protected against infection. Granting that what I have said is true, the median operation is unsurgical. A knowledge of the topographical relations of the appendix, must impress one's mind with the fallacy of the median operation.

In suppurative cases it is impossible to open and drain an abscess in the right iliac fossa through a median incision, no matter how large, without infecting the peritoneal cavity. A large incision is always to be avoided in abdominal work. Where the appendix lies to the outer side of the cecum or behind the cecum or colon the difficulties of this route would be increased. To gain access to the retro-colic space by way of the median incision would probably call for division of the internal layer of the ascending meso-colon, always to be avoided as it is preferable to go through the outer layer of the meso-colon on account of the relation the blood vessels hold to the former.

The two incisions to be considered are through or immediately to the inner side of the linea semilunaris (not cutting the rectus but pushing it inward), or through the abdominal walls after the manner proposed by McBurney.

The McBurney operation which offers a better safeguard against ventral hernia, is especially adapted to chronic cases. In favor of this operation is the direction of the deep incisions which do not entail

cutting the nerves of the abdominal walls. Some of the nervous phenomena which have been said to follow the operation of removal of the appendix through the semilunar line, I believe have been due to the section of the nerves which must follow opening the abdomen by this route. With McBurney, I would not recommend it to one who has not had a considerable experience in appendiceal work, as it is more difficult to perform than is the operation through the semilunar line. In either operation the incision should be small. In the McBurney operation the incision through the internal oblique, the transversalis muscle, the transversalis fascia and the peritoneum is of necessity small. Ordinarily, in cases of chronic appendicitis, the incision in the peritoneum need not be more than an inch in length, just sufficient to admit the index finger to pick up the cecum, the landmark in finding the appendix.

The medical clinician carefully views and studies the exterior of the abdomen, and upon the information thus gathered bases his conclusions as to what may be going on within. The surgeon sees the process and, if he has had a large experience, sees so much of the destructive possibilities of the disease that he naturally comes to the conclusion that an inflamed appendix is better in the laboratory.

THORACIC TROUBLES FROM A SURGICAL STANDPOINT.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

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In this notice of some of the phases of thoracic surgery there has been nothing of an exhaustive nature undertaken, but only an attempt to bring to the attention of surgeons the great landmarks which should prompt to further investigations in this very important branch of surgery. While many have explored every nook and corner of the abdomen, and have brought forth rich fruits of their labors, comparatively few have turned their attention to the contents of the chest.

It is true, that a few individuals have devoted their energies zealously and successfully to the investigation of the surgical disorders of the chest; but the data for studying the results of traumatism or diseases of this part of the organization are scattered throughout current literature, so as to render it difficult to arrive at satisfactory conclusions. With a firm conviction that these disjecta membra may be collected and systematized in a manner to prove instructive and profitable to the medical profession, this contribution is now presented.

There are such conflicting views in regard to the various practical measures which have been adopted in thoracic troubles, that any one who seeks for authority in the treatment of the injuries to the walls of the chest and to the viscera within, or for the diseases of the thoracic cavity, is involved in doubt and uncertainty.

The more extended such investigation may be, the greater is the confusion from direct antagonism in the practice of those whose names are prominent in the department, and there is a pressing demand for methodic rules in the management of this class of cases.

No greater boon could be conferred upon the profession than a thorough analysis of all the details available in connection with the pathology and treatment of surgical disorders of the chest, and a work which may afford a rational and comprehensive grouping of the therapeutic agencies indicated in the different troubles of the thorax ought to prove a most acceptable offering to the surgeon.

The conical space within the chest, having its apex upward, is occupied on each side by the lungs, and between them lies the heart with its investing pericardium and the arch of the aorta with the descending aorta. The pleural serous covering of the viscera is reflected over the inner walls of the thorax and the two membranes being approximated form an anteroposterior partition constituting the mediastinum. The different spaces included between the folds of the pleura are designated as the anterior, posterior, middle and superior mediastina, and play a prominent part in the rôle of thoracic troubles, amenable to surgery.

In different divisions of the mediastinum, we find the trunk of the pulmonary artery, the ascending vena cava, the innominate veins, the phrenic nerves, the vagus nerve, the esophagus, the thoracic duct, the bronchial lymphatic glands, the cardiac lymphatic glands and the posterior mediastinal gland, with other highly organized structures. This fruitful field for investigation has only recently awakened the interest of original workers and it is expected that it will be explored more fully in future.

If a patient is so unfortunate as to suffer from a surgical disorder, he does not always require the use of the knife, and I appeal to my intelligent colleagues to disabuse the minds of people as to surgeons being mere operators.

It may be that the critical reader shall expect some explanation of the term surgical disorders, employed for generalization of chest troubles. All departures from the healthy or normal condition of the tissues, involving any material modification of structure, either in size or density, may be included under the designation of surgical disorders. As has been intimated already, this does not imply a necessity for the employment of the knife or any other surgical instrument, but may be appropriately submitted to medication as a part of the surgical treatment.

In illustration of the transition of cases from the domain of medicine to that of surgery, an instructive and interesting report of Christian Simpson, giving four cases in which he had successfully used a new method of bleeding in pulmonary congestion, with a trocar, may be presented. This is an extension of Harley's method of performing hepatic phlebotomy, which was laid before the profession in 1886. There is, however, an improvement upon that process, which meets the sanction of Harley. After the withdrawal of twelve ounces of blood from the lung, the canula was kept in position with the fingers over the end to allow of a clot forming, and then it was slowly withdrawn. The patients were immediately relieved. A modification in the mode of procedure is proposed by Harley that makes the plugging of the wound by the coagulation more secure and effective, while it obviates its detachment. His proposal is that the trocar being thrust some distance into the tissues of the organ from which it is desired to extract blood, before placing the point of the finger on the mouth of the canula with the view of arresting the blood flow,

it should be slightly withdrawn—say, about half an inch or more—in order to leave an empty passage wherein a sufficiently large blood clot may form and fill the channel. In this case, the surrounding tissues of the organ will, in contracting upon the clot, hold it so firmly by their own resilience that, on the withdrawal of the canula it will break off from the end of the much larger mass, which remains as an effective plug in the wound. This mode of relieving sanguineous engorgement of the lung is worthy of further trial.

There seem to be very few points definitely settled in regard to the appliances specially adapted to the surgical disorders of the chest.

There is a marked discrepancy in the views of different observers touching the efficacy of aspiration simply, or the continued drainage aspiration upon the siphon principle in purulent pleurisy.

The discussion has been kept up in regard to medicated injections into the pleural cavity after operations, for the purpose of correcting septic processes, and as to the employment of irrigation for the entire removal of purulent collections from the thorax. The apprehension which heretofore existed in respect to the entrance of air into the chest, upon the withdrawal of a purulent collection has undergone some change from further experience as to its effects, and less concern is manifested as to it in making single or double incisions for the purpose of drainage.

The difficulty of locating foreign bodies in the bronchial tubes, either by exploration through the trachea, or by physical signs from without through auscultation and percussion, has heretofore proved a serious barrier to accurate diagnosis of the location of such bodies, but the accidents involving the bronchi from the entrance of solid matters into the air passages have generally led to operative measures for their removal. There has, however, existed considerable skepticism as to the propriety of undertaking any operation for the removal of foreign bodies from the bronchial ramifications, and Kocher consigns operative measures in those cases to the domain of experiment. A few fortunate results have been reported from time to time in the extraction of articles of different forms from the bronchi, affording encouragement to further diligence in this department of exploratory work.

There has been notable progress latterly, in the management of abscess of the lung and gangrene of the parenchymatous structure of the lung. Resections of a greater or less portion of the pulmonary tissue have clearly demonstrated the fact that thorough decarbonization and oxygenation of the blood may be effected by one lung.

The preparatory treatment of a case for an operation, and the subsequent management, often demand a resort to the use of medicinal agents by the surgeon, and the old distinction of external and internal treatment belongs to an exploded régime. It sometimes occurs that a surgical case escapes recognition by the attending physician until it has reached a point that does not any longer admit of relief by an operation, though clearly indicated at an earlier period.

Again, there are instances in which the efforts of nature may be assisted so as to overcome complications, by means which are not regarded as strictly surgical, yet all such resources pertain to the surgeon. He should avail himself of all agencies calculated to relieve his patient without an operation, and it is more creditable to heal a diseased part by conservative measures than to mutilate or excise an organ. We should not, therefore, ignore therapeutics in surgical treatment.

All concur in removing large accumulations of fluid, after various modes of internal treatment have failed to give relief; yet the conditions for this procedure, in the view of many having ample experience, indicate an apprehension of consequences which may be averted by energetic measures of treatment by medication at the outset.

The development of pneumo-thorax, either spontaneously or from traumatism, has been met by two distinct processes; one being by aspiration of the chest, so as to take away the superfluous air, and the other by the introduction of an innocent solution of boric acid or chlorid of sodium by a canula, while another alongside of it allows the air to escape from the thoracic cavity. Thus the space previously occupied with air will be filled with the fluid to be removed by siphonage, or which in due course of time is absorbed. Of course, perforations of the lung will be reduced in size by the partial collapse from the outside pressure of the fluid.

The mode of treating wounds of the parietes of the chest has given rise to much discussion. While the weight of authority is favorable to closing incised or gunshot wounds of the walls of the thorax, there are advocates for laying open freely all the parietal structures in traumatic injuries of the chest walls and lungs which are accompanied with internal hemorrhage.

It would appear from the favorable view taken by some surgeons in regard to the practice of laying open the chest, in cases of considerable hemorrhage into the pleural cavity, that this procedure was the recognized treatment. On the contrary, this practice is in opposition to the best established principles which govern the treatment of penetrating wounds of the thorax. The course adopted generally by those surgeons having the largest experience in the treatment of thoracic wounds has been to allow of the escape of all the blood which may flow out of the wound when placed in a dependent position, and afterward to close the opening by suture so as to shut off the pleural cavity from the external air.

It is recognized that all penetrating wounds of the thorax may be closed hermetically, by suture or otherwise, after allowing the discharge of fluid blood from the opening. It is also allowed by the best authority, that of experience, that foreign bodies lodged in the bronchi may be reached through an incision of the trachea at the lowest available point. Experiments for reaching the bronchi through the chest wall afford little encouragement for operation upon the human subject. Medication as a preventive and curative agency in pleuritic effusion is worthy of trial before having recourse to aspiration. Aspiration is indicated where there are large serous accumulations in the chest and likewise in pneumothorax, but can not be relied upon for the relief of purulent collections. Partial resection of ribs is attended with better results in some cases of empyema than the complete removal of the segments of several ribs. The excision of a small portion of one rib with the introduction of drainage tubes has been generally attended with good results,

A few years ago it was thought that a most desirable consummation had been reached by Estlander's

operation in empyema, but to-day serious misgivings are entertained by the conservative surgeons in America and in Europe as to its applicability, except in extremely rebellious fistulous openings of the thorax.

Quenu recommends for opening the posterior mediastinum (*University Medical Magazine* for July, 1892), to make a vertical incision 15 centimeters long over the angles of the ribs, between the spinal border of the scapula and the vertebral column about four fingers breadth from the spine, the middle of the incision corresponding to the spine of the scapula. By retracting the inferior border of the trapezium upward and inward, three ribs may be divided and resected for 2 centimeters and this permits the hand to penetrate by stripping off the pleura. This opening in the thoracic wall extends from the inferior border of the second rib to the superior border of the sixth, and drawing back the ribs enables one to explore the hilum of the lung, the aorta and that portion of the esophagus which extends from the root of the bronchus to the diaphragm. If, instead of stripping off the pleura, it is incised, the upper lobe of the lung and even the summit of the thoracic cavity are easily accessible and more readily than by resection of the ribs in front below the clavicle. It is asserted that this opens the way for relief in abscesses and other affections of the mediastinum.

A point of much importance in connection with the restoration of the respiratory function to the disabled lung without risk of injury to its structure, in aspiration and valve drainage, when no air enters to replace the fluid, is the gradual and partial evacuation of the purulent contents. An enfeebled and contracted lung can not expand suddenly to fill up the space occupied by an extensive collection of pus, and to avoid an injury to its tissues the discharge should not be completed at one time but in two or more evacuations. Levasheff has recommended the withdrawal of a certain amount of the intra-pleural exudation and replacing it at once with an equal quantity of a solution of chlorid of sodium. He says that after this operation has been repeated from two to six times, the pleural cavity would contain nothing but an indifferent salt solution which would be rapidly absorbed. While those with a limited sphere of work in the graver classes of chest trouble have claimed satisfactory results in treating empyema by thorough drainage without the resection of ribs, others have found that after these measures have failed, a resort to extensive removal of several ribs has succeeded; when the lung has become materially diminished in size or totally unfitted for the function of respiration by contraction and adhesion, it is evident that the walls of the thorax on the corresponding side should be proportionately reduced, and the only practicable mode of effecting this is to excise portions of the ribs.

Yet the growing conviction of those who have had the largest field of observation seems to be adverse to Estlander's operation except in extreme cases.

Quenu, at the suggestion of Estlander, first executed section of the ribs without resecting them, while Delorme improved upon this idea of a trap-door to reach the contents of the chest; and Jennings, Richelot, Morreau and others have done it

The following thoraco-plastic operation done by Mr. Subbotin, a Russian surgeon, some five years ago, offers many advantages over other modes of lessening the space around the collapsed lung; a segment from two to three inches long is first resected from the seventh rib and the pleural cavity is opened and washed out. This opening is then plugged with gauze. Then a vertical incision about two inches long is made along the outer border of the pectoralis major muscle. Through this the sixth, fifth and fourth ribs are exposed without being denuded of periosteum, and from each of these a little wedge is removed by means of Liston's bone scissors so that the rib is made movable. A similar vertical incision is then made in the posterior axillary line, serving for the exposure and division of the same ribs in this situation. These two incisions not opening into the pleural cavity are sutured without drainage. The portion of ribs lying between the two points of section are thus enabled to sink in and when healing has taken place they protect the thoracic cavity and support the vertebral column.

While there may be cases of pulmonary abscess with adhesion, relieved by simple incision and washing out the cavity, the procedure of Runeburg in excising a large piece of rib directly over the abscess and making a free opening directly into the pleural sac, with a smaller opening into the pulmonary tissue, is often indicated.

It is held that abscess of the lung presents signs and symptoms which admit of a positive diagnosis and that operation is often demanded. Perier, of Paris, reports the case of a man 58 years old, in which an incision was made in the left second intercostal space and the lung tissue, covered by pleura, was seized with a pair of forceps. The pleura and the lung were incised and about two fluid ounces of pus were discharged, when two long drainage tubes were secured in the cavity which had been washed with camphorated naphthol. The operation gave an entirely satisfactory result.

A case of pulmonary gangrene is reported by Delageniere, of Mans, in which resection of lung gave a favorable result. He infers from this and nineteen other recorded cases of pneumotomy for pulmonary gangrene, that the operation has hitherto failed to give the desired result, because surgeons have been content merely to drain the gangrenous focus instead of extirpating it as completely as possible.

It seems to be demonstrated beyond a doubt that interference in all cases of abscess of the lungs which have not opened into the bronchi is attended with success, and that gangrene of the lung is completely amenable to surgical interference.

The operation of thoracotomy for abscess and gangrene of the lung should be accompanied with antiseptic applications and gauze tamponage. The great importance attached to the operation of pneumonectomy is demonstrated by the extensive notice in medical journals in different countries, of the excision of the apex of lung for tubercular disease in March, 1892, by Tuffier. The first pneumonectomy ever reported was performed by Milton Anthony, of Augusta, Ga., in March, 1821, for an injury inflicted originally by a fall from a horse. A rib was fractured, empyema resulted, and four years afterward Anthony found the lung tissue in a disorganized condition, when he removed portions of the fifth and sixth ribs and detached all the diseased parts of the lung with his fingers.

A personal examination of twelve dead subjects by

Eugene Rochard, of Paris, for the determination of the average tract of the interlobular fissures of the lungs, will doubtless be of service in surgical treatment of abscess and gangrene of the lung by transcostal openings. This is ascertained to occupy a zone containing the fifth and sixth ribs, which are the ones therefore to be taken out by the surgeon. The fifth intercostal space in front and on the side is the one most commonly in communication with the oblique fissure. It will be observed that this corresponds very nearly to the free spot of Marshall which is near the attachment of the costal cartilage of the fifth rib, which has been indicated as the most favorable point for entering the thoracic cavity.

Two cases are described by J. H. Cox, one being aspirated with good effect, and the other from neglect of this procedure, terminated in pointing and spontaneous discharge through the chest wall about the seventh interspace. There was an average discharge of one quart a day for eight months, of thick creamy pus; but in a year afterward this had entirely ceased. This case affords an illustration of the unaided power of nature.

Those who have kept abreast of the advances in surgical resources for chest troubles will fully appreciate the aggressive work in this department. But, unfortunately, there are comparatively few of the medical profession who have taken the trouble to ascertain the facts in regard to the various measures which have been adopted in wounds of the thoracic walls, or in the modification of the pleural contents from diseases. The aggressive spirit manifested by the operative measures of those who have been reaching out for relief in treating the disorders of the chest has been checked to some extent by the difficulties met with in some departments of original work.

There has been exhibited also by a few prominent investigators, a tendency to masterly inactivity in certain fields of exploration, which is now held to be conservative surgery. But a retrospect of the result indicates decided advancement.

A NOTE ON THE ADVANCE IN THE SURGICAL CURE OF HERNIA.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7–10, 1895.

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In order to bring into marked contrast the operations now being extensively done for the cure of hernia, with those of the past which have failed, we must devote a few moments to the review of the latter.

It would be a waste of time to go back farther than the past twenty years, and it would be impossible to even name *all* of the various procedures that have been advocated during this period.

In 1876, Czerny gave to the profession the operation bearing his name, which, with various modifications, and under the names of their authors held the field for ten years. The neck of the sac at the external ring was tied off, but its removal was seldom attempted. The pillars of the external ring were then brought together as tightly as could be done without constricting the cord. The suture material was usually catgut. In 1886, the MacEwen operation spread rapidly over the surgical world. MacEwen dissected out the hernial sac, folding it upon itself into a bunch or "boss" which, after being pushed up through the canal, was stitched to the abdominal wall at the internal ring, where it was expected to act as a barrier to the re-descent of the hernia. In certain very favorable cases this hope was realized, but in a large percentage of the very class of cases which were in the greatest need of surgical aid, nothing but disappointment was in store for the surgeon and his patient.

Then came the method bearing the name of our eminent countryman, McBurney, which rapidly took the lead of all others in this country. This operation, while it did not prove a success as regards permanence of cure, was a long step in advance, in that it opened the canal to the internal ring and removed all foreign substances. The error in its technique was in closing the wound by cicatricial tissue which did not prove stable in character.

Next in line, and in importance, came the almost simultaneous publications of Halsted and Bassini, in 1890, of methods in many respects similar, but with the evidence in favor of Bassini in that he had been using his operation since 1884, and was able with his first publication to give a report of over two hundred cases. Not only was this a larger number of cases than the author of any previous operation had ever reported, but the results as presented were such as had never been secured by any other method and his death rate so light as to remove it from the list of dangerous operations.

This operation has now been under trial in this country for the past four years, with results fully equalling those presented by its author, and, personally, I can say far in excess of my most sanguine expectations. I had for some time used the operation of Barker, of London, with fairly good results, but have now not only abandoned it, but have become an enthusiastic advocate of the method of Bassini.

The operation needs little description at this late date. Its details are within the reach of all, and quite familiar to most of my hearers. The canal is, in every instance, opened to the internal ring. The sac is separated from the cord, ligated, and cut off flush with the peritoneal surface. The cord is elevated and the original canal for its transmission obliterated. The divided structures are brought into apposition and held by a suture material which is not quickly absorbed, and which does not act as an irritant to adjacent tissues. While Bassini uses silk for this purpose, most operators in this country are using kangaroo tendon, and are quite willing to confess their obligations to our former President, Dr. Marcy, for this valuable material.

Without further detail, let us consider *why* this operation, and Halsted's, as well, is liable to cure where former methods have failed. The secret, if there be any, is soon discovered by those who adopt it, and it is this—that the canal is cleared of all foreign substance—then the repairs begin at the internal ring, and the structures are restored to as nearly a normal condition as is possible.

In my operations I have found in the canal in various cases, since doing the Bassini operation, the following substances which, if they had not been removed, would have furnished strong predisposing causes for the recurrence of the hernia:

1. Tough and thickened sacs, a persistent tube with serous lining.
2. Good sized bunches of soft fatty tissue connected with the cord.
3. Lipomatous growths—extra-peritoneal.
4. Enlarged veins connected with cord.
5. Masses of adherent omentum inside of sac and in vicinity of internal ring.

In former methods none of these complications were found, but as I have had opportunity to demonstrate upon some of my own patients, they have been the cause of recurrence. The opening of the canal throughout its entire length has therefore been, it is believed, the most important advance in the surgical cure of these cases.

Twenty years ago to remove a portion of the omentum was deemed a hazardous undertaking and for this reason, large and hypertrophied masses were returned to the abdominal cavity. These have not infrequently acted as a foreign body producing peritonitis. If the patient was fortunate, and escaped this accident, the hardened plug of fat remained at or near the internal ring, ready to act as a wedge for re-dilating the canal. Later, several eminent operators were unfortunate enough to have sepsis or secondary hemorrhage following its removal. At pres ent, this is all changed, and the speaker has now operated upon forty-five cases, in patients of all ages, from 13 to 70 years, where pieces of omentum of various sizes have been removed, and without an accident of any kind. There have been enormous masses, requiring the ligation of numerous large vessels in some instances. Formerly, operators were in the habit of surrounding large masses of this tissue by a single ligature, and that usually of catgut, cutting it off and dropping the stump back into the abdomen. Under pressure the fatty tissue was rapidly absorbed, the ligature slipped off and hemorrhage occurred. I regret to say that this method is still followed by some surgeons, to the very great risk of their patients. In a recent report of these cases before the Surgical Section of the New York Academy of Medicine, which will be published shortly in the *Annals of Surgery* (June 2, 1895, p. 658) I have demonstrated a method which seems to insure the greatest amount of safety. This is to use silk as the ligature, to tie every vessel that is large enough to be seen, without including any fat. I have applied over twenty silk ligatures to a single omentum. I have used silk in all of my cases, and have seen no bad effects from leaving it in the cavity of the abdomen.

The method of tying off omentum, which is suggested, has also another advantage. When the omentum returns to the abdomen its edge is free to spread out naturally, instead of being held in a mass in the vicinity of the canal.

I regret to see that two of our countrymen have recently advocated operations, each different in character, where attempts are made to utilize the hernial sac, to fortify the parts against a return of the hernia. The word regret, is used because I am convinced that the sooner we recognize the hernial sac as a foreign body, the sooner will we come to a definite understanding as to just how much we can promise our patients who suffer from hernia. It is surely a step backward.

In closing, we can put the facts of our advanced position in the surgical cure of hernia in a few brief sentences:

1. Asepsis has so far removed the dangers that we are justified in doing a truly "radical" operation.
2. Any method that fails to remove all abnormal tissue, or that uses suture material quickly absorbed, *invites* failure.
3. Mortality has been reduced from 8 per cent. to a small fraction of 1 per cent.
4. The time of confinement to bed has been reduced from three or more weeks to eight or ten days.

We can not at this time speak with absolute certainty, but we have the best reasons in the world to believe that the number of permanent cures have been advanced from 40 or 50 per cent. to at least 90 per cent.

REPORTS ON TYPHOID FEVER CONTINUED.

NO. VIII.

Read before the Ohio State Medical Society, Columbus, Ohio, May 17, 1895.

BY JOHN ELIOT WOODBRIDGE, M.D.

YOUNGSTOWN, OHIO.

A few days since I overheard a physician say: "There is no physician in the world so learned and possessed of such perfect integrity as to have been able to convince me by any statement that the uniform results I have seen Dr. Woodbridge secure in the treatment of typhoid fever were possible."

When asked by his interlocutor what he regarded as the strongest evidence of the truth of declaration "that typhoid fever can be aborted," he answered: "Seeing it done. After that, the charts and reports of the cases of other physicians who have treated typhoid fever by Dr. Woodbridge's method and thus have succeeded in saving the life of every patient and greatly shortening the duration of the disease." His remarks prompted me to amend the report which I had prepared, of cases of typhoid fever which I had treated during the past year, by embodying in it some accounts of the failures and successes of other physicians who have essayed the abortive treatment of the disease; relying on the directions which I had given in papers (written only to prove that the disease could be aborted); on hastily written letters; on instructions given orally or on bedside consultations. Many of them have shown their enthusiasm over the results of their trials and tests of this method of treatment by sending me clinical charts of the cases; and gratefully acknowledging their indebtedness to me for their marvelous success; a most laudable example of true courage and heroism, to thus report results (the very possibility of which had been so strenuously denied) which it is devoutly to be hoped may be largely followed.

As the object of this paper is to place the Ohio State Medical Society in a position to reach a just conclusion of the veracity of the affirmation "that typhoid fever can be aborted," I shall draw from all these sources. Many of the original charts (copies of which I hand you) and the letters from which extracts are made are here for your inspection.

Those of you who were present at the last meeting of this society, when I read my paper on "Typhoid Fever," will remember that a member arose in his place and said: "Being from Dr. Woodbridge's town and society, I wish to say that we have had several 'fights' on this subject, and we have been watching

his cases for several years to see if he could make his pledges good; but so far we have been unable to discover that he has made any failures, or had a death from typhoid fever." . . . "And we intend to continue to watch him in the future and if he have a death we will report it." The fact that no such publication has been made, may be accepted as conclusive testimony that for thirteen years I have had no death from the disease and have aborted every case of typhoid fever which has come under my care at a reasonably early stage of the disease.

During the past year I have treated alone or in consultation, 58 cases of typhoid fever; during the same period, there have been treated by 117 other physicians, acting under my advice; by consultation at the bedside; in conversations in which I have given very complete and precise counsels in regard to the guidance of the patient throughout the illness —more than eight hundred cases.

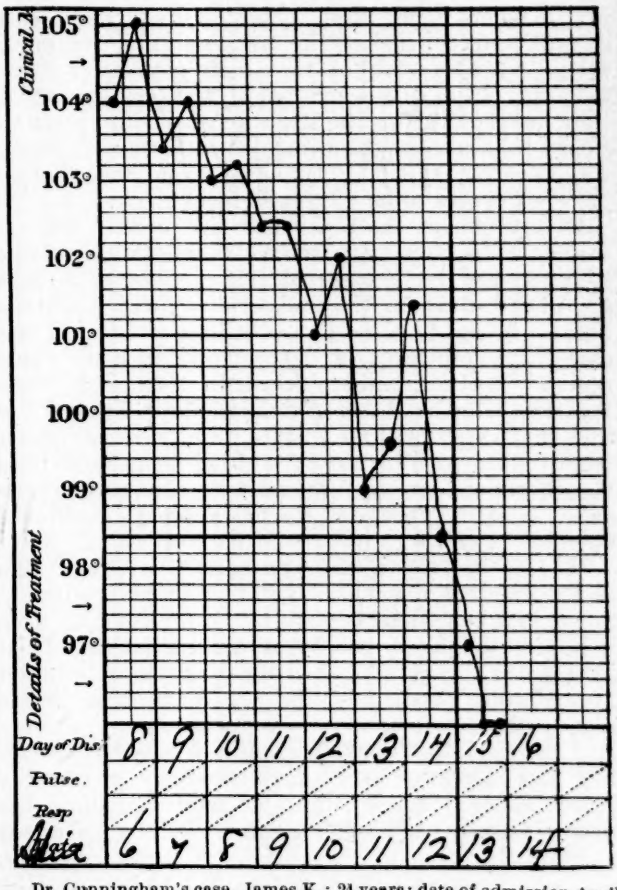
I have seen in consultation during the past twelve months two fatal cases.[1]

Case 1.—Mr. H. C. O., of Sewickley, Pa. This patient had been feeling sick and miserable, and, under the impression that he had la grippe had been taking quinin for several days. Yielding to the inevitable, he finally went to bed and sent for his physician who found that he had pneumonia. Later, he had an alarming hemorrhage of the lungs. No pathognomonic symptoms of typhoid fever were observed until the night of December 1, during which he had numerous profuse intestinal hemorrhages. I was called the next day and found him in a condition bordering on collapse, bleeding from both the lungs and bowels, and he died before the hemorrhages could be arrested.

The only other fatal case which I have seen in consultation, occurred in the practice of Dr. M. V. Cunningham; whose experience in the Cook County, Ill., Hospital and at the Emergency Hospital, during the World's Columbian Exposition, had served to render him an unusually accurate diagnostician, and taught him to appreciate the value of antiseptic medicine. Conservative to a degree—educated to believe that there was no power in medicine to abort typhoid fever—he had watched my cases with the eye of an unfriendly critic, until forced by the logic of my repeated successes, he called me in consultation several times, and consequently was able to produce such brilliant results in a number of instances that I had the most implicit confidence in his ability to treat typhoid fever in a perfectly scientific manner.

Case 2.—James K., aged 24 years. (See chart marked "Dr. Cunningham, No. 3." This patient was very sick on March 13. On April 1 he sent for a physician, who (according to the statements of the family) made a diagnosis of la grippe and called again the next day. The patient growing worse, Dr. Cunningham, who a few weeks earlier had treated a small niece of the patient through a very severe attack of typhoid fever by the method I had advised, with unusual success; (see chart marked "Dr. Cunningham, Case No. 1, Ella G.") was called on April 6, and he called me in consultation on April 7. I found that the patient had been so sick nine days before I saw him as to lead to the obvious conclusion that he had been sick even longer; a conclusion fully justified by his condition, his temperature having been the previous day 105 degrees; his bowels excessively tender and tympanitic; nervous symptoms exceedingly bad; his tongue very dry and brown, also tremulous. He had persistent hiccough and was delirious. The next morning Dr. Cunningham came to my office to say his patient was so wildly delirious that his father who was taking care of him was unable to give him medicine and could with difficulty keep him in bed; and consequently wished to send him to the hospital—a desire which met my heartiest concurrence. This, unfortunately, was abandoned on account of expense.

I did not hear from the patient again till April 10, when Dr. Cunningham invited me to see him, remarking in a pleased way: "I would like you to visit him once more before he is well; and you must hurry or you will be too late, for his temperature was 101 this morning, and at the rate it is dropping it will be normal in a day or two." Visiting him about 10 A.M., we found his temperature 100 6-10 degrees; his tongue moist and less coated; his head clear; his abdomen quite flat and entirely free from tenderness; tympanitis very slight; nervous symptoms greatly improved; and sleeping naturally. He had taken no antipyretics or stimulants. His condition having improved so rapidly since my last visit, I told the Doctor that I believed his patient would be well in less than ten days; and according to reports, he continued to improve till the following evening, when his symptoms were all better and his temperature was 99 6-10. Up to this time the disease had run the usual course expected under antiseptic treatment, and, save that it had been instituted too late to prevent necrosis and ulceration of Peyer's glands which needs must have time to heal by granulation, the patient was nearly well.



Dr. Cunningham's case. James K.; 24 years; date of admission April 6, 1895.

Consequently I was greatly surprised, when Dr. Cunningham telephoned me the next day that the patient had had two convulsions during the early morning and was very restless, delirious and seemed to be suffering great pain, apparently abdominal, as indicated by the manner in which he rubbed and tugged at this region.

Examination revealed a doughy mass, filling up the abdominal cavity, most solid on the right side. He continued to have convulsions; his mouth and tongue became dry and parched; his temperature became subnormal; he grew more restless; his delirium became more profound; and he died of shock, two days after the accident.

The autopsy revealed an intussusception, the obvious cause of death by shock to the nervous system, already exhausted by the long and exceedingly severe delirium and under great strain on account of the septic condition due to the enormous pyogenic surface; the whole of the small intestine being inflamed, and all of the agminated glands of Peyer, in the more

[1] Since this paper was written, a third case, which I saw only once on the twenty-ninth day of the disease died.

than six feet of intestine examined—ulcerated. The stomach and intestine above the intussusception were full and distended—below it, empty and collapsed.

This case presents the strongest possible confirmation of the correctness of my diagnoses—because there is not, among all the cases I have reported as typhoid fever, a single case which offers fewer pathognomonic symptoms of the disease than this one. It positively confirms my declaration that "typhoid fever can be aborted;" for severe as it was, and despite the fact that treatment was so long deferred that necrosis of Peyer's gland was unavoidable; it yet pursued the ordinary course toward recovery, and before the unfortunate accident occurred which caused the death he was practically cured.

It presents the most convincing and irrefutable evidence of the validity of my assumptions as a whole; and it seems to me that it should overwhelm with shame and confusion the arrogant and impudent critics who, forgetful of my nineteen years of clinical experience, with a method of treatment to which they have not given the slightest attention, presume to say that because the clinical chart does not present the so-called typical "typhoid fever curve"—*ipso facto*—it ceases to be a typhoid fever chart.

If any one of the gentlemen are present who in former years have criticized my charts (and in doing so have positively asserted that a chart showing a steplike decline in the temperature, which touches normal in eight or ten days, could not be one of a case of typhoid fever) will scrutinize well the chart marked "Dr. Cunningham's Case No. 3., James K.," and examine also that book of charts—in it he will find that there are not three charts which depart further from the so-called typical "typhoid fever curve than the thermic line," on the chart of this man, whose small intestine presented the most extensive series of ulcerated Peyer's glands that I have ever seen.

Had the physician who was called to attend this man on April 1, made a correct diagnosis or, failing to do so, had he called in consultation a physician who, if unable to make a positive diagnosis, would at least have given the patient the benefit of the doubt, and immediately instituted proper antiseptic treatment; the misfortune of an intussusception may still have befallen the patient, and he may have died; but he would have been spared those days of burning fever; those sleepless nights of wild delirium; the necrosis of Peyer's glands and their consequent dangers.

I have known all these years that these were the clinical charts of cases of true typhoid fever; known that some of them were charts of cases of the disease in which necrosis and even ulceration of Peyer's glands had already supervened; and I have also been aware that there were among them the charts of patients who, but for the treatment I had advised, would have been sleeping beneath the sod.

In nearly every medical society before which I have presented dissertations on typhoid fever, certain members have wisely delivered themselves of one or more of the following sage citations, either literally or with a very slight re-arrangement of words as, for instance: "We all know that typhoid fever is a specific infection which must run its course of four, five, six or ten weeks or longer;" or it may be that one will sapiently remark: "If there is one fact in medicine that is well established, it is that the course of the disease in typhoid fever can not be shortened by a single day;" and these erudite persons seem to deem these parrot-like assertions as incontrovertible testimony, amply sufficient to confute totally and instantaneously the whole of the accumulated evidence of my clinical experience; quite sufficient, too, to disprove the statements of all the proficient physicians who have corroborated my diagnoses and results. But it should be remembered that unwarrantable assumption is not valid reasoning and the plausible arguments that have been adduced in confutation of my claims are not more convincing than have been opposed to every step in the progress of medicine.

In the Cleveland Medical Society where, without malice toward any member of the medical profession of that city or county; but for the two-fold purpose of emphasizing my confidence in the potency of antiseptic medicine; and also of letting the profession abroad, comprehend and realize that I had attained the unattainable—that I had, in defiance of all known laws of pathology, "achieved a victory" over diseases of a microbic origin, which, when accepted by the medical profession, would add perceptibly to the average duration of human life, by greatly reducing the mortality from this class of diseases—I told what I had accomplished; described my method of procedure; stated in strong language the responsibility which I believed devolved upon those members of the profession who, knowing or having the means of learning how to save the lives of all cases of typhoid fever and who failed to give their patients the benefit of the knowledge; thus nettling the members of this, as well as of my own local society, to such an extent that had my house been made of glass, it would have been about my ears—for my expressions were harshly criticised and in the heat of debate many broad and preposterous arguments were advanced.

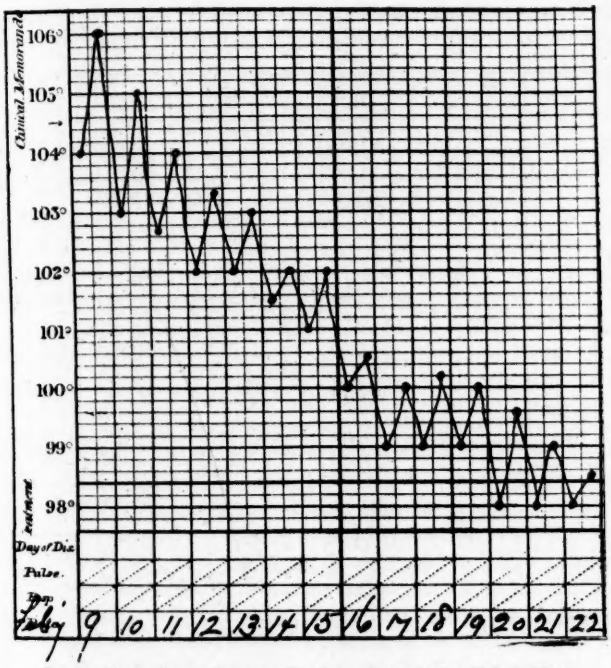
The ubiquitous professor, already in possession of all of this world's knowledge that is worthy of his attention, was ridiculously conspicuous in a way that would have been laughable had not the subject been so serious; and exposed his ignorance, not only of antiseptic medicine, but of the true character and pathology ot typhoid fever. Thus, one savant added superciliously and blusteringly to his remarks: "He claims that the temperature has gone to normal in four or five days after intestinal hemorrhage. Absurd! What could he do for the ulceration of the bowels?" As if the ulceration of Peyer's glands were the cause of the elevation of the temperature. Absurd! And as a climax and a final adjustment of the subject said, sententiously: "Talk of aborting typhoid fever. Impossible!"

To me, and to those who have with ease, confidence and tranquillity aborted the disease, these infelicitous comments are "absurd," indeed.

A latter-day Sydenham, gifted with peculiar perspicacity, selected three charts as looking very much like the record of the temperature in cases of malarial fever. The fact of the matter is, that his extraordinary clear-sightedness availed him nothing for he had, unluckily for himself, chosen the charts of three cases of typhoid fever which occurred during two epidemics. The patients had been examined and the diagnosis verified by no less than six different physicians at the bedside; and no doubt was expressed, at the time, as to the character of the disease. It is hardly conceivable how so grievous a

mishap could have befallen the critic, for unfortunately, the lines on the charts did not delineate the rise and fall of the temperature of malarial fever—a blunder most inexcusable even in the most inexperienced medical man. The arguments thus adduced by notable professors whose reputation for scholarship beyond measure has heretofore been undisputed have been puerile indeed—unworthy alike of the speaker, his auditors and the topic under discussion. It is hard to understand, too, how a philosopher so penetrating, so profound, could be so willfully blind as not to have observed that at least fifty of these were the clinical charts of typhoid fever patients each one of whom had been examined by from two to six physicians, the diagnoses and results of treatment attested to, and all of these facts written on the face of the original charts, which were signed by physicians whose integrity and experience in diagnosis can not be questioned.

But when these charts were criticised, and when the fact that the temperature touched normal in



Dr. Justice's case. Lorenzo C.; date of admission Feb. 9, 1895.

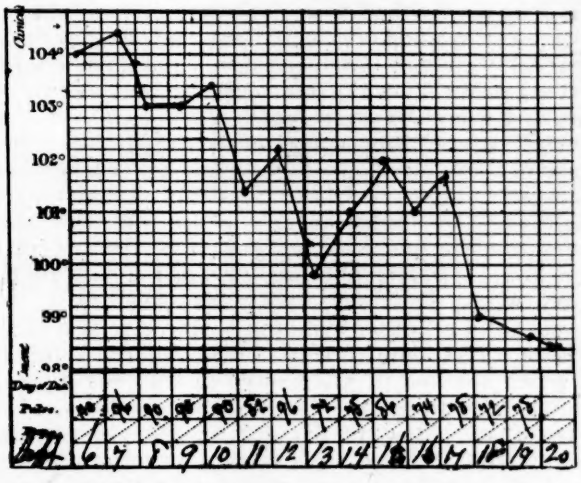
seven or eight days was said to be proof that these patients did not have typhoid fever, I knew that if the opportunity should ever present itself, I would be able to demonstrate on the cadaver the truth of my statements. I little expected, however, that I would live to see a case of *aborted typhoid fever* in the dead-house.

But here I present to you a temperature chart kept at the bedside of the patient by the attending physician, Dr. M. V. Cunningham (Case No. 3—James K.) in which the temperature touched normal on the seventh day of treatment; the thirteenth day of the disease. And here I present to you, both dried and moist specimens of the intestine of the same patient, showing the characteristic and extensive ulceration of Peyer's glands. Here is the intussusception which caused the death. Please open the bottles and investigate to your entire satisfaction. The history and the pathologic specimens prove conclusively that one case of typhoid fever was aborted. "*Ab uno disce omnes.*" Thus, this obscure colored man—dying—has rendered a greater service to the world, than can her most distinguished citizen—living.

It is interesting to note that every adverse criticism of my theories; my management of disease or of my conclusions, have come from those having no practical and, I fancy, very little theoretical knowledge of the subject; while those who have tested my methods have favored me with more valuable reports and kindly expressions of approval than I have been able to transcribe or properly answer.

I append a few of them here. I presented others in my papers read before the Sections on Pediatrics and Practice of the AMERICAN MEDICAL ASSOCIATION.

Dr. John McCurdy, one of the most distinguished physicians in the State of Ohio; many times President of his County Medical Society; ex-President of the Ohio State Medical Society; during the war, Regimental, Brigade and Division Surgeon; Assistant Medical Director, and Acting Medical Inspector of the 14th Army Corps, has had 320 cases of typhoid fever under his care at one time. A firm believer in the idea that any limitation of the course of the disease in typhoid fever was impossible; in the County Medical Society in 1880 he spoke eloquently against the acceptance of my theories, and in 1893, in the



Dr. I. F. Reed's case, No. 1. Clarence F.; age 24 years; residence, Massillon, Ohio; date of admission Sept. 6, 1894. After the 21st temperature remained normal, pulse 76. Treatment "Woodbridge" formulas for aborting typhoid fever.

same Society in which he had spoken thirteen years before, said: "Dr. Woodbridge has made the greatest discovery that has been made in medicine for a hundred years. I have treated typhoid fever by his method for several years, and have aborted a large number of the sixty-five or seventy cases treated since 1890, although I have not been able to abort every case and have had two or three deaths; these occurred, however, in cases that came under my care at the end of the second week of the disease or later. I know that this treatment has power to destroy the specific poison of typhoid fever and if begun early will abort the disease. It is the best treatment I have ever seen advised."

At a public banquet given to the Chamber of Commerce, at which there were probably three hundred guests present, Dr. McCurdy, in responding to the toast, "The Medical Profession," said: "We claim that one of our number here is the discoverer of a treatment for that universal and justly dreaded disease, typhoid fever which, as a rational and scientific plan of waging battle with that life destroyer, is far

in advance of any treatment yet practiced. This treatment has stood the crucial test of years, in hundreds of cases, and the theory is fully sustained by the long list of victories achieved."

Dr. C. R. Justice, the very able Health Officer of Poland, Ohio, and ex-Member of the Pension Board, with whom I have had seventeen bedside consultations over cases of typhoid fever during the past year, had for years condemned my theories and denounced my position as "absolutely untenable;" until I had learned to regard him as a devotee at the shrine of the "expectant method," who would go on to the end of his professional career treating the disease symptomatically; accepting the long weeks of sickness of his patients as something entirely beyond his control, and the deaths as visitations of Providence for which he was in no way responsible. I was greatly surprised, therefore, to learn that he had been investigating the subject for months. That he has continued his investigations to good purpose is proved by the success he has secured in treating some very severe cases of typhoid fever (a few of the charts of which are submitted for your inspection), and by the fact that I was able to write to one of his brother practitioners of his town, advising him to call Dr. Justice in consultation, as he had treated so many cases by my method that I felt perfectly safe in saying to the friends of the patient that if they called him early enough they need never fear that he would have a death from typhoid fever, or that any of his patients would be severely ill.

Your attention is especially invited to the clinical chart of Case—(Dr. Justice, Lorenzo C.) who had been under the care of two other physicians at a neighboring town. He had been sent home with the statement that he had a severe attack of typhoid fever and would necessarily be sick a long time. He arrived, wildly delirious, with a temperature of 106 degrees and all other symptoms characteristic of the disease. His temperature touched normal on the eleventh day and in a few days he was out driving, feeling perfectly well.

Dr. Justice has treated during the year, by my method, twenty-three cases without a death; although some of them have been complicated by grave pre-existing or concurrent affections and some of them came under his care at late stages of the disease. In speaking of the treatment, Dr. Justice said: "Looking back over the past, I can see where I could have saved many lives had I understood this method of managing typhoid fever as I now do; and I think I would be committing a crime were I to treat a case of the disease in any other way than that advised by Dr. Woodbridge."

Dr. J. A. Dickson, of Youngstown, Ohio, a gentleman of the highest integrity, a physician whose reputation as a general practitioner is happily not marred by his success as a laparotomist, sends me the following report:

"YOUNGSTOWN, OHIO, April 29, 1895.

"I have treated several cases of typhoid fever with Dr. Woodbridge's treatment, and find that it will invariably cut the fever short, if begun early enough in the disease; the illness lasting often but a few days; the temperature soon dropping to normal and remaining there. I have tried also the mixed treatment; that is, using the tablets as directed and also, perhaps, some turpentine emulsion, quinin, etc., but find that it pays better to 'hew to the line.' I have recently been treating a case of typhoid fever, which came to me from another physician who was ill. It had not been treated by Dr. Woodbridge's method, and when I first saw the case I found the temperature 104 degrees, the pulse 100. I immediately began with the tablets, giving one every fifteen minutes for the first day, one every half-hour during the second day, and one every hour during the third day, etc. During the second day the temperature came down to 101.8, upon the third day it was 101.4. fourth day 101.4, fifth day, 101.2, sixth day 98.6. After this the temperature remained normal for four days, when the patient came down with pneumonia, with the characteristic râles, ægophony, hepatization and expectoration—from which he is now recovering. The temperature upon the onset of the pneumonic trouble went up from normal to 101.8 the first day, and gradually to 103 degrees, but the tongue was moist and there were no symptoms of typhoid fever.

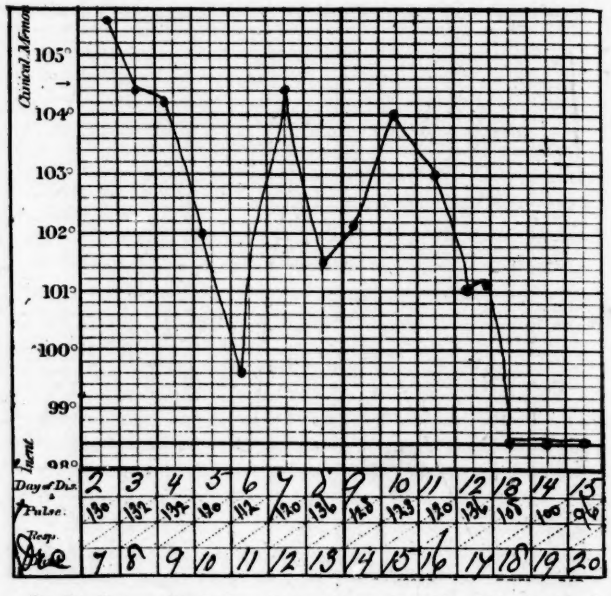
"If I were stricken with typhoid fever, or one of my family were taken down with the dread disease, I think I would feel like sending for Dr. Woodbridge from the Atlantic Coast to the Golden Gate. J. A. DICKSON."

There must be royal blood coursing through the veins of Dr. Reed of Massillon, Ohio, for of such material as he is made, made they the kings and rulers of the earth in olden times. In one of the darkest hours of my existence he wrote me as follows:

"MASSILLON, OHIO, Nov. 14, 1894.

"*J. E. Woodbridge, M.D.,*

"*Dear Doctor:*—I wish to add a word of encouragement to you against the many denunciations of your treatment of typhoid fever. I wrote for your formula some time ago, and you referred me to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, from which was obtained the required knowledge. My father, Dr. T. J. Reed, has also used it; we have met with very good success, and can offer only words of praise in its favor. We have been giving about 30 grains of quinin per day (this being a great malarial district), for four days, and if at the end of that time we found the temperature high and the symptoms the same or aggravated, we put them on the treatment prepared under your formula, and although we have not aborted the disease in every case inside of ten days, we have done so, with the exception of two cases, inside of fourteen days, and seldom see them after the sixteenth day. I have kept diligently the charts of the cases I have had and have taken



Dr. Reed's case, No. 2. Wm. G.; age 16 years; admitted Dec. 7, 1894. Delirium, some cough and lungs filled with mucus; three weeks before was treated by Dr. Waldron, of New Berlin, for malarial fever. Was moved, and for a week nothing was noticed until the night of December 6, when his parents found him hunting water and delirious. On the third day mucus râles in both lungs; sixth day became slightly hepatized in both apices; ninth day apex and base of both lungs hepatized, leaving an area of about six inches for breathing capacity; tenth day hepatization not so great; fifteenth day both lungs clear. Patient worked at a place where there were three cases of typhoid fever, and made a visit before he was taken sick. Treatment: I used no treatment for lung trouble except that which I used for the treatment of fever; and for that only the "Woodbridge treatment." Result most satisfactory, as shown by chart. Patient is up and doing well to-day, Jan. 18, 1895. Family history: Mother had two sisters, father and mother, who died of pulmonary phthisis.

pleasure in showing them to other physicians who laughed at my daring to use the treatment. They take a different view of it now, though. Had I but known a few hours earlier of your intention to speak in Cleveland, I should have gone there and let my voice help to defend you; or if not allowed that, at least it might have been some satisfaction to you to have seen the few charts (ten in all) we have been able to prepare. Hoping that you may meet with greater encouragement at the hands of the profession, and that I may be able to meet you personally at some future time, I remain Yours truly, T. F. REED."

A few days later Dr. Reed kindly sent me the charts to which his letter refers, with the accompanying letter:

"*J. E. Woodbridge, M.D.,*

"*Dear Doctor:*—I send you by this mail, a few of my charts that were unmistakably typhoid fever cases and some of them were the last cases of from two to four in the family who had similar attacks, but of which I regret to say no records were kept. We have had, in all, about twenty-five cases, and these charts are examples of them. We are well pleased with the results we have had, and can positively say that it is due to the form of treatment. I hope the charts will be of use to you, and anything I have or may get is at your disposal.

"I should like to have the charts returned, as I have no duplicates and want to keep them for future use. The temperature marked was taken at the height of fever. Wishing you better success, and acceptance of your theories. I remain very truly yours,

"T. F. REED."

(To be continued.)

CONSERVATIVE SURGERY ON THE BATTLE-FIELD AND FIRST AID TO THE WOUNDED.

BY N. SENN, M.D., PH.D., LL.D.

COLONEL AND SURGEON-GENERAL OF THE ILLINOIS NATIONAL GUARD; PRESIDENT OF ASSOCIATION OF MILITARY SURGEONS OF ILLINOIS; EX-PRESIDENT OF THE ASSOCIATON OF MILITARY SURGEONS OF THE UNITED STATES.

CHICAGO.

(Concluded from page 14.)

Autotransfusion.—In threatening danger to life from hemorrhage much can be gained from autotransfusion. The exclusion from the general circulation of unessential parts of the body will often secure for the vital organs an adequate blood supply. Autotransfusion for this purpose is secured promptly and efficiently by elastic constriction of one or more extremities at their base. This can be accomplished by Esmarch's constrictor, suspenders, or in the absence of elastic material, by the use of the Spanish windlass. According to the urgency of the symptoms presented, the base of one or more extremities is constricted after rendering the limb comparatively bloodless by elevation. By exclusion of the circulation from one or more extremities, intravascular pressure compatible with essential functions is restored and life is bridged over for a sufficient length of time for the employment of remedies of more lasting value.

Shock.—Next to hemorrhage, shock should receive the surgeon's attention. It is often difficult to differentiate between the symptoms produced by shock and hemorrhage. The non-professional assistant should be made to understand that the maximum symptoms of shock are developed almost immediately after the receipt of the injury, while in hemorrhage the intensity of the symptoms increases progressively. Even in a complete transverse tear of an artery the size of the common carotid, it requires at least five minutes to produce death from hemorrhage in intense shock, symptoms pointing to a fatal issue appear almost immediately upon the receipt of injury. Shock is the result of a reflex vasomotor paresis and, consequently, if severe, calls for the most energetic and prompt treatment. A patient suffering from shock should be kept in the dorsal recumbent position and treated by active stimulation. Inhalations of nitrite of amyl and hypodermatic injections of strychnia in doses of from one-fifteenth to one-twentieth of a grain, repeated every half hour, until reaction takes place, constitute the most successful treatment. The administration of alcoholic stimulants, camphor and ammonia is also indicated, as well as the external application of dry heat. In the transportation of patients suffering from shock, the greatest care should be exercised not to subject them to any unnecessary movements, and it is of special importance that the recumbent position should be maintained until reaction is established. No operation of any considerable importance should be performed until the patient reacts from the immediate effects of the injury.

Primary Dressing of Wound.—Perfect aseptic surgery upon the battle-field is a happy dream which will probably never be realized. The bullets, as recent experiments have shown, are frequently contaminated with pathogenic microbes, and often carry with them infectious fragments of clothing and

FIG. 12.—Cartridge belt with package sewn on inner surface.

other foreign substances, as well as microbes from the surface of the injured part. Again, in large battles the number of wounded is so great and the number of those to whom their treatment is intrusted so small, that the necessary antiseptic precautions to obtain an antiseptic condition of the wound can not always be carried out. The duty of the surgeon upon the battle-field in rendering the first aid to the wounded, after having given proper attention to the treatment of shock and hemostasis, will be to prevent subsequent contamination of the wound by protecting it with an antiseptic occlusion dressing. Shaving and disinfection of the surface in the vicinity of the wound will be out of the question under such circumstances. Search for bullets and efforts to secure their removal must be postponed until the patient reaches the field hospital, where these procedures are facilitated and the attending danger of causing infection diminished by a more complete instrumentarium and more efficient means to secure asepticity of the wound and its vicinity.

Behind the fighting line, and at the first dressing station, the primary dressing of the wound should consist of the antiseptic package which every soldier should carry with him. The best place where this package should be kept has not been determined. Esmarch suggests that it should be sewed in some part of the uniform. It appears to me that no part of the clothing of the soldier would be a sufficiently

NOTE.—The "denunciations" to which Dr. Reed refers, are those of physicians who denounce the abortive treatment of typhoid fever without trial or investigation, as they would denounce anything which did not chance to fall within their intellectual horizon.

safe place for this most important outfit when in active service. In the heat of battle the soldier often relieves himself of a part of his clothing, his knapsack, but there are two things which he will not part with willingly, and these are the cartridge belt and gun. It appears to me that this package could always

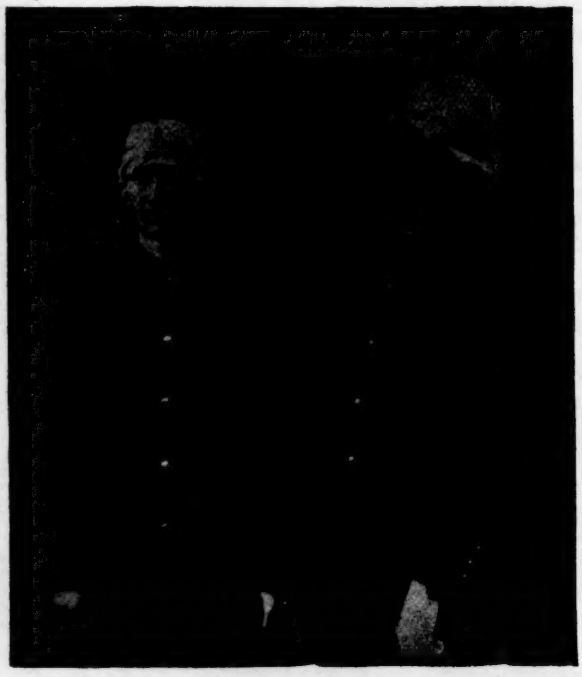
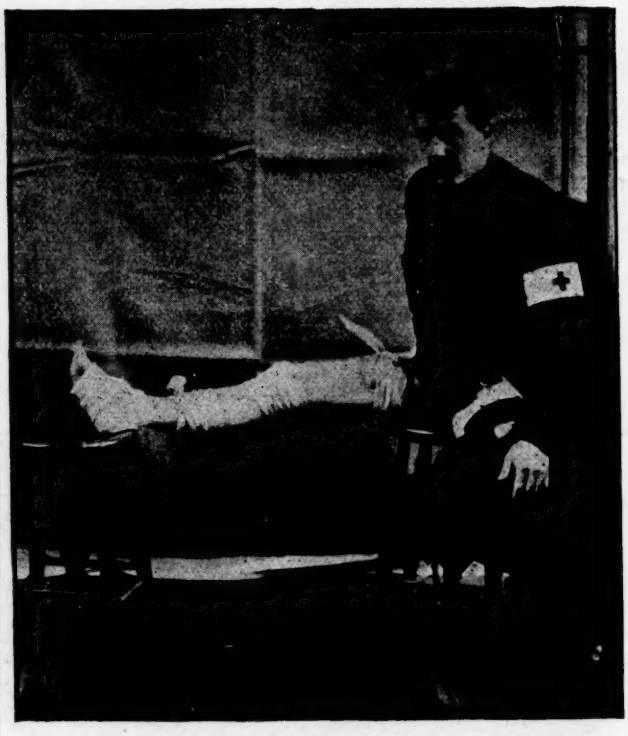


FIG. 13.

FIG. 14.

be found upon the wounded soldier if it were sewed upon the inner surface of the cartridge belt. The package should be thin and correspond in width with the cartridge belt. Esmarch's package used in the German Army contains: one triangular bandage, one safety-pin, two compresses of salt sublimate mull, 10 cm. wide and 100 cm. long, each wrapped in impermeable paper, one salt sublimate cambric bandage, 10 ctm. broad and 2 m. long. All these articles are wrapped in gutta-percha paper. This package is too cumbersome and contains articles which can be dispensed with in the dressing of wounds upon the battle-field. In the majority of cases the first dressing is only a temporary one and is replaced later when the wound is subjected to thorough examination and treatment by a more efficient one. The package should be as small and compact as possible and should contain only such articles as are absolutely necessary to protect the wound against infection during the interval between the receipt of the injury and the arrival of the patient at the field hospital. Cotton is the most compressible hygroscopic dressing material and the most efficient filter in preventing the access of microbes to the wound. Two



FIGS. 13, 14, 15.—Showing primary dressings of the head, upper and lower extremities.

drachms or half an ounce of compressed salicylated cotton will furnish the necessary material for a primary occlusion dressing. This can be held in place in almost any part of the body by a triangular gauze bandage, assisted, if circumstances make it necessary, by the cartridge belt, gunstrap, or articles of the patient's clothing. A safe and efficient antiseptic powder which does not easily deteriorate should invariably constitute a part of the package. A combination of boric and salicylic acid is the one I should propose for this purpose. Two grams of boric acid and half a gram salicylic acid, thoroughly triturated, should be incorporated in the center of the compressed cotton, the cotton surrounded by the triangular gauze bandage and with the addition of a safety pin wrapped in gutta-percha tissue.

In applying the dressing, the compressed cotton is loosened, the wound freely dusted with the powder

contained in the center of the package, the wound well covered with the cotton which should overlap its margins, and the dressing held in place by the triangular bandage and such additional extemporized means of retention as may be necessary.

For the purpose of preventing rapid decomposition of the blood which will soon saturate the primary dressing, and with a view of guarding against infection of the wound from this source, it is absolutely necessary to incorporate with the dressing material and bring in contact with the wound a safe and efficient antiseptic which, in this package, consists of a combination of boric and salicylic acid.

Immobilization of Injured Joints and Fractured Limbs.—In the case of fractures and joint injuries, the affected limb should be properly immobilized to prevent additional injury and pain during the transportation of the patient to the field hospital. As it

FIG. 16.—Immobilization of arm and forearm by fastening the sleeve to the coat near the wrist and elbow joints with safety pins and inserting hand underneath coat on opposite side between two buttons.

is impossible for the surgeons and Hospital Corps to carry with them upon the battle-field, material for splints in sufficient quantity, they must depend upon articles which can always be found upon the battle-field, in securing for the limb a proper mechanical support. A few of such extemporaneous dressings will be shown in the following figures:

The splint should be well padded with the blanket, or articles of wearing apparel. In compound fractures and penetrating wounds of joints, perfect immobilization by a plaster-of-Paris splint should be secured as soon as possible, but as this can not be done behind the fighting line, for obvious reasons, the temporary improvised dressing should be replaced by the permanent fixation dressing at the field hospital. Antiseptic precautions and perfect immobilization will be the most important elements in the conservative treatment of compound fractures and penetrating injuries of large joints.

Transportation of Sick and Wounded.— Increased and improved facilities for rapid transportation of the wounded from the fighting line to a place of safety, will be an essential requirement in securing the greatest amount of benefit from conservative surgery upon future battle-fields. The general introduction of the new infantry weapon will make it necessary to establish the field hospital farther in the rear of the line of battle than formerly. Unless a natural protection by a hill or deep ravine is available, it will be necessary to locate the field hospital at least 3,000 meters from the line of action. This will necessitate an improved ambulance service. The

FIG. 17.—Mitella by fastening lapel of coat on injured side with two safety pins in such a position as to support the forearm in a flexed position.

latter will be resorted to in transporting the severely wounded from the point where the first aid is rendered to the first dressing station.

A well-trained Hospital Corps, and the use of improved litters and ambulances will be instrumental in securing prompt and easy conveyance of the wounded from the line of duty to their destination. An efficient bicycle litter is a much needed desideratum in the transportation of the wounded from the fighting line to the first dressing station and field hospital.

The Surgeon's Work at the Field Hospital.—The conservative work begun on the battle-field is continued at the field hospital, which offers additional facilities for the practice of ideal conservative surgery.

It is here that efficient measures can be employed to correct the injurious effects of profuse hemorrhage and to overcome the symptoms of prolonged shock. It is here that every serious wound will be thoroughly examined and under strict antiseptic precautions will be subjected to the necessary treatment. It is here where permanent hemostasis will be substituted for temporary measures. It is here that the abdomen and cranial cavities will be opened for penetrating wounds requiring such intervention for the arrest of hemorrhage, the removal of foreign infected bodies and the direct treatment of visceral wounds. It is here that permanent plaster-of Paris splints will be substituted for the temporary fixation dressings, in cases of compound fractures and penetrating wounds of joints.

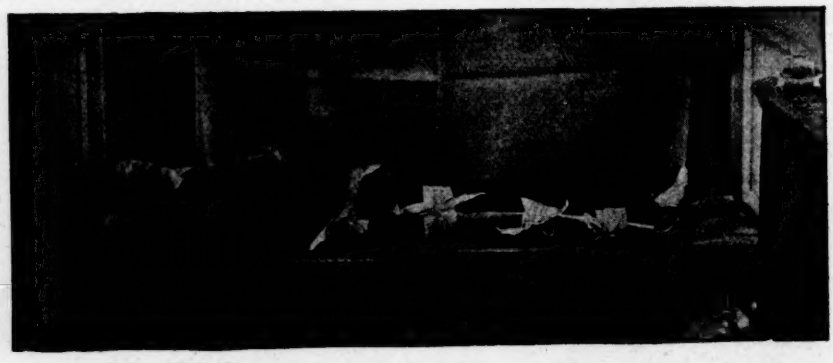


FIG. 18.—Saber splint for leg and thigh.

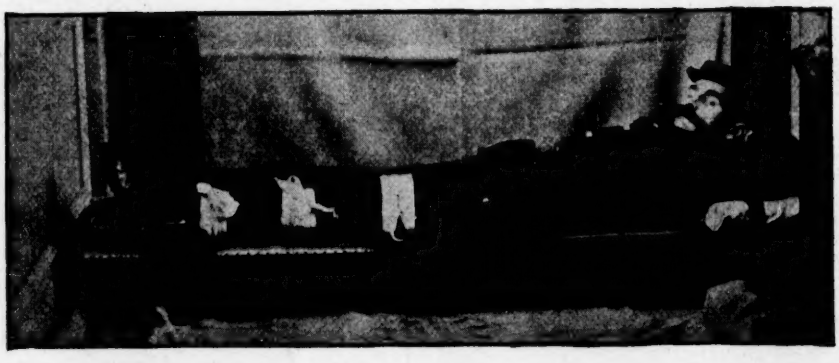


FIG. 18 a.—Gunsplint.

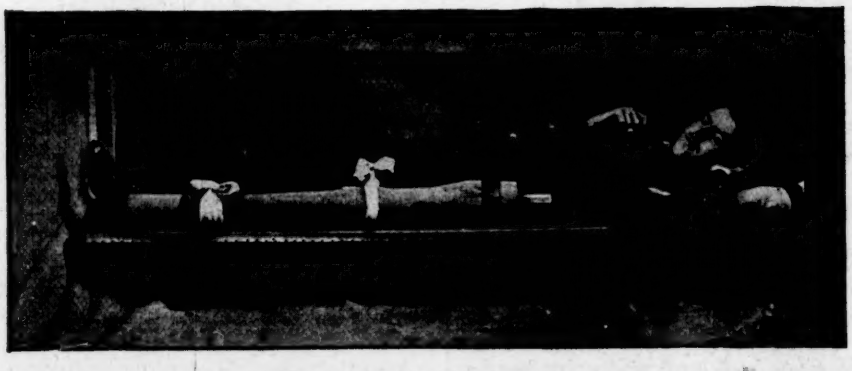


FIG. 19.—Stick and blanket splint.

Indications for Probing and Extraction of Bullet.—The modern small caliber bullet will render a resort to the bullet probe much less frequent than was the case in the wars of the past. Owing to its greater velocity and power of penetration it will pass through the different parts of the body, regardless of the resistance offered by the osseous structures at a distance intended for shooting to kill. In the presence of a wound of entrance and exit, the use of the probe should be dispensed with, as an exploration of this kind would yield no indications of diagnostic value and might become a source of infection or a cause of renewal of hemorrhage. The jacketed bullet is less liable to undergo deformation in striking a hard object such as bone, and is also less likely to become deflected than the leaden bullet. Additional modifications of the character of the bullet wounds will render the use of the probe less frequent in the future than the past. Search for the bullet under antiseptic precautions is justifiable in gunshot fractures, penetrating wounds of the cranium and joints. It is absolutely contra-indicated in penetrating wounds of the chest and abdomen. In bullet wounds of the soft parts, an attempt in this direction is warranted when the surgeon has reason to believe that the bullet is located

FIG. 20.—Bark splint for forearm and wire splint for arm.

in a place accessible to its safe removal. Probing for bullets, on the whole, has done more harm than good in the past, and the limits of the indications for this procedure will be greatly narrowed in the future. If the bullet can not be removed without performing a formidable operation it is much better to permit it to remain and wait for additional indications than subject the patient to additional risks incident to the operation. The modern bullet in an antiseptic wound will become encysted like the leaden bullet and, in the majority of cases, will remain permanently in the tissues as a harmless foreign substance. If the nature of the injury makes the search for and an attempt at its removal necessary, the exploration should be made systematically and under the strictest antiseptic precautions.

The metal jacket of the modern bullet detracts from the value of the famous Nélaton probe, and has made the equally famous American bullet forceps obsolete as an instrument of extraction. The porcelain bulb of Nélaton's probe will, however, answer a useful purpose in following the track made by the bullet and in demonstrating the presence of a foreign substance in the soft tissues. The porcelain bulb of the ordinary Nélaton's bullet probe is too small, especially in searching for bullets of large caliber. It is much easier to follow the tubular wound made by a bullet with a probe, the porcelain bulb of which approximately corresponds in size with that of the bullet. As in instrumentation of the urethra, a false passage is more likely to be made with a small than a large instrument. I have had a bullet probe made which is supplied at both ends with a porcelain bulb, one of which corresponds in size with a 22 caliber bullet, the other with that of a 38 caliber.

The porcelain bulb of the ordinary probe is very liable to become detached in exploring deep wounds, and may be lost in the wound, as happened in one of my cases. To prevent such an accident, the bulbs of my probe are drilled through, the ends of the silver probe pass through, and are clinched in a depression on the surface of the bulb. In searching for bullets it is of the greatest importance to bring the parts and tissues of the body as nearly as possible in the exact position they occupied when the injury was received. That no more force should be employed in using the bullet probe than in passing a catheter is simply to repeat a cardinal rule to which there should be no exceptions. Skill in the delicate manipulation

FIG. 21.—Litter transportation.

of the instrument, patience and perseverance will accomplish more than force in these cases. Bullets which can be felt under the skin opposite the wound of entrance are extracted without exploration of the wound canal. If the bullet occupies a locality where its presence would be incompatible with a good functional result, as the cavity of a large joint, it becomes usually necessary to enlarge the wound with the knife, chisel and mallet to follow the course of the bullet and to effect its extraction. In one case I removed a 22 caliber bullet from the center of the knee joint by such a procedure, in a boy 14 years of age, who recovered with nearly perfect use of the limb. A similar case is reported by Volkmann. The metal jacket of the modern bullet will make it necessary to construct bullet forceps with great grasping power to facilitate its extraction. In penetrating gunshot wounds of the skull, Flührer's aluminum probe and his technique in removing a bullet from the cranial cavity merit the earnest attention of every military surgeon.

Craniectomy.—Operative interference is indicated in every case of penetrating gunshot or stab wound of the cranium. The object of such operation is to secure asepticity of the wound and its environment, removal of loose spicula of bone and infected foreign substances, arrest of hemorrhage by torsion, ligation or tamponade and, if feasible, removal of the bullet.

The wound of entrance is enlarged with chisel or rongeur forceps sufficiently to enable the surgeon to meet the indications for the operation. If the bullet is lodged in the interior of the skull, it may become necessary to make a circular craniectomy in the course of the bullet at a point opposite the wound of entrance, for the purpose of establishing thorough drainage and to facilitate the removal of the bullet.

Laparotomy.—In my address at the last annual meeting, I discussed the advisability and feasibility of laparotomy upon the battle-field in cases of penetrating bullet and stab wounds of the abdomen, and I shall not occupy your time on this occasion by further remarks on this subject.

Amputation.—The object of conservative surgery upon the battle-field, as well as in civil practice is to obviate, whenever possible, the necessity of mutilating operations. Prompt and careful hemostasis, antiseptic precautions, immobilization of compound fractures and injured joints, and early and careful transportation of the wounded from the field to the temporary hospital are the most fruitful resources of the modern military surgeon in the prevention of complications that so often necessitated intermediate and secondary amputations in the wars of the past. A primary amputation for gunshot wound of the extremities is only justifiable by extensive injuries of soft parts and fractures and joint wounds complicated by injury of large vessels and nerves. In other words, the indications for a primary amputation will be studied and sought for, more by the character and extent of the injury of the soft tissues than the extent of the bone or joint lesion. In doubtful cases the patient will be given the benefit of the doubt, as under antiseptic precautions the risk to life is greatly diminished in the attempt to save a limb by conservative treatment. The conditions which will demand an intermediate or secondary amputation in cases

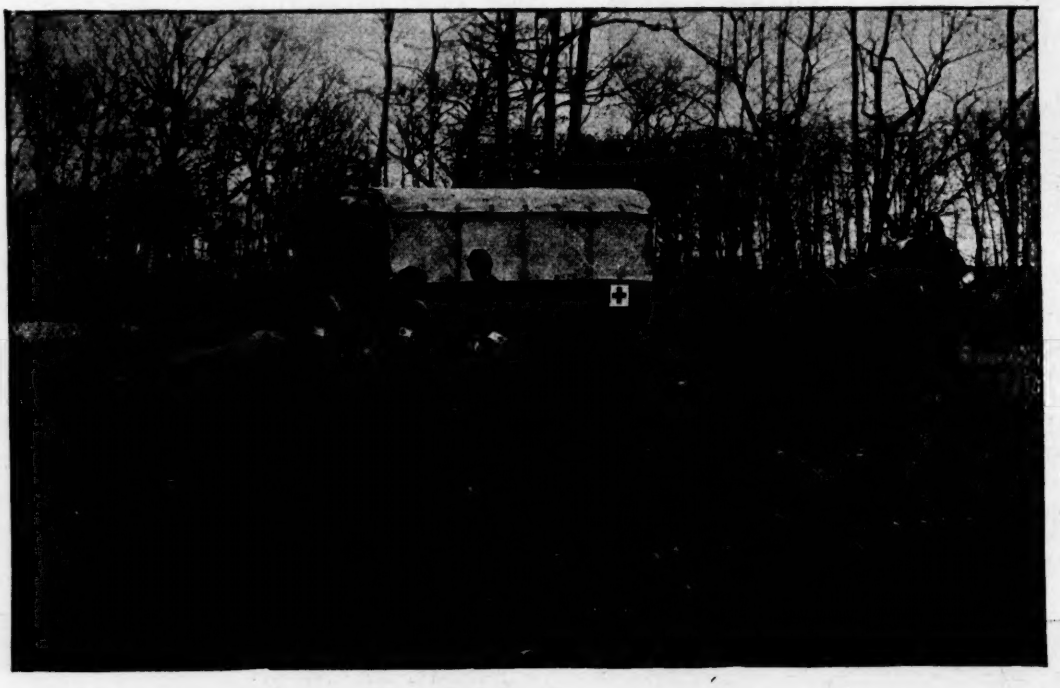


FIG. 22.—Manner of transferring patient from litter to ambulance.

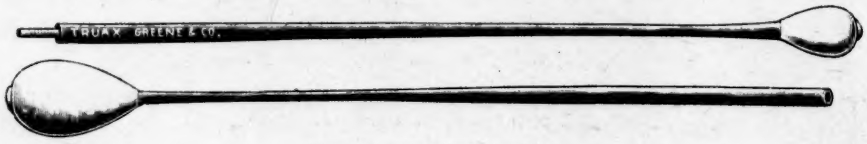


FIG. 23.—Senn's bullet probe.

thus treated will prove less perilous to life than in the past, an additional inducement to practice conservatism in doubtful cases.

Resection.—Primary resection for gunshot wounds of joints for obvious reasons has become an obsolete operation in modern military surgery. The most brilliant results have already been obtained by conservative treatment of such cases. The military surgeon will make it his duty in such instances to resort to such measures as will prevent complications necessitating secondary resection and amputation. Thorough disinfection of the wound, removal of loose fragments of bone and infected foreign substances including the extraction of the bullet, if this is found within or in the immediate vicinity of the injured joint, gauze drainage and immobilization of the limb in a circular plaster-of-Paris splint are the most effective measures in accomplishing this end.

I have briefly sketched in this paper the essential topics which will engage the attention of the military surgeon in the future in keeping pace with the rapid advances of modern surgery, and which will enable him to extend the blessings of conservative surgery to the wounded upon the battle-field of the future. The members of this Association should regard it as their duty to so perfect themselves in the principles and details upon which rests ideal conservative surgery, as to apply it in practice should they be called upon to serve their country upon the battle-field.

PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI.)

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(*Continued from page 637, Vol. XXIV.*)

Development of the great omentum did not seem to give anatomists any amount of trouble before the digestive canal was carefully followed in all its fetal stages. Is it true? From the old descriptions of anatomists some modifications, it seems to me, must be introduced. The two blades of the peritoneum which extend from the greater curvature of the stomach to the transverse colon are recognized by all as correct. But it is the relation which the transverse colon sustains to this fold that needs modification. I will proceed with a few simple diagrams to make myself better understood. The first, (Fig. 11) will represent the adult stage with the relations of the transverse mesocolon. The mesogaster extends from the mid-dorsal line to the stomach as a double fold of peritoneum. It grows or expands toward the left in the form of a pendulous bag. When the stomach has assumed the adult position, the mesogaster becomes the great omentum and hangs down from the great curvature of the stomach in front of the small intestines. The object of the diagrams is now to show how the transverse colon gets between the blades of the great omentum, and then it will fit the old descriptions of anatomists who knew not embryology. Figure 12 shows how the fold of peritoneum (*d*) passes back to the spine. I wish to show that the peritoneal fold (*d*) is dragged out from between the stomach and colon. I wish especially to show that it does not coalesce. In the early embryo the cecum remains in the center of the body in proximity to the navel, so that there is at first only a descending colon existing which has a mesentery. By the rotation of the great umbilical loop and growth of the colon, there finally exists a transverse and ascending colon. Until the great intestinal loop rotates, the whole of its colon is fixed to the mid-dorsal line by its mesentery. This mesentery extends as high as the lower end of the mesogaster. By a glance at Fig. 2 it will be readily seen how Haller, Müller and Meckel come by their views. With them the lower blade of the great omentum and the upper blade of the mesocolon coalesced, *i. e.*, the loop or fold of peritoneum represented by (*d*) becomes adherent; it is cemented together and has lost its epithelial surface and that would produce Fig. 1 again. Now, the view held in this work and gained by embryologic and adult animal investigation is that the fold of peritoneum (*d*), is drawn out as far as the transverse colon (*c*), and is readjusted, displaced. Haller, Müller, Meckel and many older anatomists asserted in order to sustain their theory, that the transverse mesocolon consists of four layers. It seems to the author more reasonable to accept the theory of displacement or re-adjustment, since coalescence is not a general rule in tissue life, especially when it has been once differentiated into organs. Toldt claims that the theory of coalescence is reasonable, and as proof offers the white line existing along the left side of the descending colon. I have examined such white lines, but they seem to be situated distant from the colon. It might be pertinently asked, Why does coalescence, especially, associate itself with the transverse colon and omentum? The assertion of old and even modern anatomists to the effect that the two ascending layers of the omentum can be stripped off the upper transverse blade of the mesocolon, in fetuses, I do not believe to be true; at least in no fetus of any age could I separate the ascending layers of omentum from the transverse mesocolon. The view that makes the two ascending layers of the omentum pass to the vertebral column and then return (or at least one blade return) over the transverse mesocolon and at the same time coalesce, I do not believe will be sustained by careful investigation in embryologic and adult mammalian life.

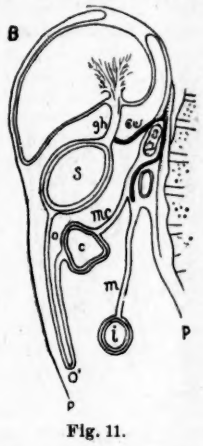


Fig. 11.

Fig. 12.

Fig. 11—*s*, stomach; *m c*, meso-colon; *o*, great omentum; *m*, mesentery of small intestine; *c*, colon; *p*, parietal peritoneum; *i*, small intestine; *g h*, gastro-hepatic omentum. This figure represents the adult condition of the peritoneum and in the next figure I wish to show how the peritoneum develops from the fetal to the adult condition.

Fig. 12 shows the fold of peritoneum, *d*, against the dorsal wall; *s*, stomach; *c*, colon; *i*, small intestine. The object of the diagram is to illustrate how the fold *d*, descends to allow the transverse colon to finally lie between the meso-colon as in Fig. 16.

The following statements I can make from human embryologic work: take an embryo of about an inch long and the colon will consist of a transverse

and ascending part which has, so far, no connection with the great omentum. Now, the ascending layers of the great omentum pass directly back to the spinal column, but do not touch the colon to be fixed to it as in Fig. 13. Again, the under blade of the omentum passes downward to become continuous with the upper blade of the transverse mesocolon as in Fig. 13 at *d*. The whole interest, now, lies in the peritoneal fossa at *d*. The final disposition of the fossa, *d*, will determine the theory of coalescence or displacement, Fig. 14. If the fold of serous membrane, *d*, is dragged out displacement triumphs, but if the fold at *d* adheres, coalescence carries the day. Now, take embryos of about one and one-half to two inches and we find distinctly that the transverse colon is beginning to assume relations with the great omentum. But significantly it begins on the right end—a very important matter. The reason is the close relation that the right end of the transverse colon bears to the duodenum and consequently the mesogaster. The mesoduodenum is really a part of the great omentum. As a matter of fact, the great omentum assumes relations with the transverse colon gradually from right to left. This, in my opinion proves that this new relation of the omentum and transverse colon comes about by displacement (from right to left) rather than coalescence, *i. e.*, the fold,

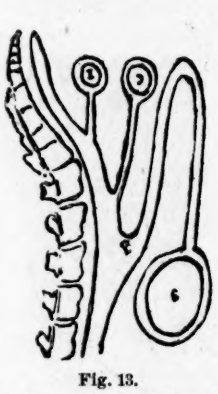


Fig. 13.

Fig. 14.

Fig. 13 shows the fold of peritoneum, *d*, gradually being drawn out from between the layer of omentum and mesocolon: *s*, stomach; *c*, colon; *i*, intestine. The fold, *d*, is being gradually displaced and not coalescing with its adjacent layers.

Fig. 14 illustrates further progress in displacing or dragging out of the fold *d*.

d, is gradually displaced from right to left and the relation of the great omentum and colon assumes adult relations. (Fig. 15.) As the relations of the omentum and colon gradually arise, we can not trace the two ascending layers of the great omentum back to the spine, because the transverse colon has gained access to the space between the lower blades of the omentum as seen in Fig. 1. Beside, I never could discover any positive evidence of adhesions or coalescence between the lower blade of the omentum and the upper blade of the transverse mesocolon. The fold, *d*, becomes gradually drawn out from between the lower blade of the great omentum and upper blade of the transverse mesocolon as is represented in Figs. 12, 13, 14, 15, and 16 until the adult condition, Fig. 11 and 16 is reached.

Fig. 15 shows the last stage of the displacement of the fold, *d*. The dog, in my opinion, gives the best base to work on. In the dog, one can easily observe how the process proceeds. In Fig. 1, it can return on itself, so that the two ascending layers of the omentum, as they pass back to the spine diverge to embrace the transverse mesocolon and again converge to form the transverse mesocolon. It may be asked, What are the forces which tend to displace the fold, *d*, *i. e.*, what drags the fold of peritoneum, *d*, from between the omentum and mesocolon. The rapid increase in the size of the stomach and its being forced downward by the liver may be factors. But it is more likely to be the rapid increase of the transverse mesocolon. It also fills with meconium and will drag on its mesentery. The increase in size and dragging from meconium contents are no doubt the essential factors. A curious feature of embryos under one and one-half inches or up to two inches, is that the colon is the smallest part of the digestive tube and the colon has no bands, no appendicæ epiploicæ and no sacculations. But in fetuses of some three inches an extraordinary rapid growth occurs in the colon, and meconium begins to accumulate which no doubt accounts for many new changes in the relation of the colon and the blades of the great omentum. Hence, from considerable personal observations on embryos, both human and animal, and investigations on adult man and mammals, I am of opinion that the transverse colon assumes its relations with the layers of the great omentum by displacement and not coalescence.

Dr. Lockwood has written an excellent article on

Fig. 15.

Fig. 16.

Fig. 15 shows the fold, *d*, almost entirely drawn out or displaced. It is the stage just preceding the one where the transverse colon lies in the mesocolon through displacement or readjustment and not coalescence.

Fig. 16 represents the final adult condition of the omentum, *i.e.*, the transverse colon, *c*, now lies between the blades of the mesocolon, or, in other words, between the layers of the secondary mesogastric. The peritoneal folds and pocket connected with *d*, have disappeared.

the development of the great omentum, to which the reader is referred. Dr. Lockwood makes the significant remark that coalescence is not a common occurrence. The size of the great omentum is a very variable matter. In man it normally reaches in the pelvis. In the dog it reaches well in the pelvis. In the pig, so far as I have examined, it is not quite so liberal. The great omentum is not so liberal in the horse or ox as in man and animals. There is no rule or principle in comparative anatomy, known to me, whereby one can estimate in any animal the amount of great omentum. It is reported present in all mammalia, but least developed in cetaceous animals, hence the difficulty of comparing it in animal species. In about three hundred bodies examined, living and dead, I found the omentum in various conditions as regards size. In quite a number of humans, both living and dead, I have found the omentum so large that it covered nearly every abdominal viscus out of sight. In one autopsy, performed by Dr. Waite and myself, the omentum was so large that scarcely a point of the liver was visible, after opening the ab-

domen as wide as possible with a crucial incision. In some parts the omentum was about an inch thick, so that such a body would possess at least six square feet of great omentum. A dog is much more liberally supplied with great omentum than man. In short, so far as I can observe by peritoneal examination, man has relatively less peritoneum than any other animal. The great omentum may spread over all the abdominal viscera, except a portion of the liver and stomach. I have seen it cover almost the whole of the abdominal viscera and become tucked in around the edges like a bedquilt, forming a wonderful protection against infectious invasion and also a wonderful protection against the distribution of pus. In general, children have not large omenta. The omentum increases especially from the sixth fetal month until birth. It then grows rapidly in the first and second years of life. It must be remembered that the omentum exists distinctly in fetal life from the second month on, and I think I have found it at the end of the first month. So, for large sized omenta we must look at extra-uterine life, just beyond the age of childhood, in the early stages of adolescence.

The omentum is variously supplied with fat. One can observe it as transparent as glass in subjects dying of long and continuous wasting diseases. I have observed the human omentum loaded with fat an inch thick. When the fat first begins to accumulate in the omentum it assumes the paths of the blood vessels and in various animals it appears in streaks of elegant figures. In most animals with a large omentum the accumulation of fat is at first quite ornamental, as it figures the highways of nourishment. The color of the fat varies from a white marble color to that of a pronounced yellow. The fat is inclosed in the meshes of the connective tissue, especially in the mesenterii membrana propria. The omentum is inclined to fat accumulations in all animals which I have examined (or noted in comparative anatomy works). The fat seems to be in indirect amount to the size and number of the blood vessels, hence the greatest accumulation of fat is at the roots of the omentum, along the greater stomach curvature or along the colon transversum. So far as I have been able to observe, the fat in the omentum is in direct proportion to the fat in other portions of the body. When the fat is abundant one can observe that it molds itself to the various chinks and depressions existing between the adjacent viscera. It tucks itself down in the crevices between intestinal coils and clefts of organs. After a certain amount of fat accumulations in the omentum one can not determine the course of vessels.

The position of the omentum I have observed in some animals and in over one hundred humans. It may reach into the floor of the pelvis or it may be rolled up behind the transverse colon until it will not be visible on opening and turning outward the abdominal walls. The first and most generally applicable statement in regard to the position of the omentum is that it tends to the left in nearly every case. This seems to be on account of the relation of the omentum to the spleen and ligamentum phrenico-colicum. Also because the last relation of the transverse colon and omentum is assumed at the left end of the transverse colon, *i. e.*, in the ligamentum phrenico-colicum. The acquired relations of the left lower border of the great omentum with the ligamentum phrenico-colicum arises in fetal life—in the fifth month and more completely later. The left-sided tendency of the great omentum is also induced by the greater curvature of the stomach being well disposed to the left of the median line.

(To be continued.)

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine New York, Sept. 25, 26, and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 32.)

Mr. F. B. N., age 28. Presented himself for treatment, June 5, 1894. Impairment of general health. Has had catarrhal trouble for many years. For four years tinnitus aurium, at first in both ears, never bad in right ear and disappeared after a month. Trouble in left ear persistent. Once in a while has a roaring, never without the hissing noise. Post-nasal dropping, formerly profuse discharge from anterior nares, but now dry with scabs and crusts. No odor. Has been under the care of specialists for past four years.

Physical examination: tonsils enlarged, swollen, intensely red. Uvula swollen, elongated, tipped with string of mucous and deflected to the side. General relaxed condition of pharyngeal mucous membrane with marked congestion and hypersecretion. Left Eustachian tube thickened and not free to Politzer's test. Hypertrophy of middle turbinated, left nares. Has been treated for thickening of left Eustachian tube and drum of left ear. Passage of left nares obstructed by enlarged turbinated bone, middle.

Diagnosis: atrophic rhinitis, with thickening of left Eustachian tube and drum.

Treatment: in all thirteen hydro-electric applications, negative, water slightly saline, one quart, have been administered to ear at intervals of four and five days, current strength 4 to 6 milliampères. Occasionally, not oftener than once in eight days before beginning the nasal douches, the indifferent electrode was the copper sound at the mouth of the Eustachian tube; at other times, the ordinary electrodes (area fifteen square inches) at the nape of the neck. After first negative douche there was complete cessation of the hissing sound and it remained in almost complete abeyance for an hour; much modified during the day. It has continued to gradually grow less and from a sibilant hiss has become a sound of a similar nature reduced at least a half. Hearing distance—test by means of watch—has increased two inches. At one time tinnitus disappeared for one hour and a half immediately after treatment.

For the atrophic rhinitis seven applications of the $CuSO_4$ cataphoric douches were given at intervals of seven and eight days, 3 gr. to 1 qt., sp. gr. 1002, percentage strength 0.02057. Indifferent electrode, fifteen square inches in area, placed at nape of neck, current strength 3 to 10 milliampères.

After first nasal douche there was a good deal of smarting and burning through nasal passages and in frontal sinuses, with suffusion of eyes and coryza, also a headache which lasted during the entire day. Subsequently there was a very free watery discharge from anterior nares. Three days later the tonsils, uvula and entire pharyngeal mucous membrane were found markedly less swollen and congested, with very much diminished secretion. The watery discharge from anterior nares continued in gradually diminishing quantity during the week and was slightly increased at each subsequent treatment but not to the same extent as after the first application. Nasal respiration became freer; scabbing ceased, also post-nasal dropping; tonsils and uvula returned to normal size and color. Two cupric punctures of 11 milliampères each to the hypertrophied, middle turbinated, left nares, resulted in a marked diminution in its size. These were not made until the establishment of relief by means of the electric douche. General health very much improved.

In administering the intra-nasal douche, the left nares, narrowed by the hypertrophied turbinated, was preferably utilized for the inflow so as to secure perfect drainage.

Left Eustachian tube free. Patient continues under care. Other cases of atrophic rhinitis have been treated in the same manner with the same clinical results.

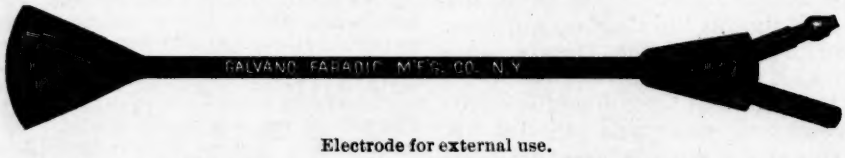
THE STOMACH.

For some time electricity has been used within the cavity of the stomach by means of a specially devised electrode in the hands of Dr. Max Einhorn of New York. His method is to have the patient drink a requisite amount of water and then to swallow the electrode, which is subsequently attached by means of its conducting cord to the battery terminal and the pole indicated. Possibly, in general conditions, there is no better method of applying the electrical current.

My experience with hydro-electric applications to other cavities suggest the value of the electric douche, simple or cataphoric, in diseases of the stomach. If judiciously applied, and by an expert, one can not fail to see its possible value in many conditions, among which may be mentioned, atony, hyperesthesia, subacute gastritis and dilatation.

Since beginning this paper, I find that Rosenheim[7] suggests the use of a stomach douche non-electrically applied, and while advising the use of electricity in nervous dyspepsia, in chronic gastric catarrh and in severe affections of the sensory and secretive apparatus of the stomach as in gastralgia and hypersecretion, he does not, so far as I can ascertain, combine the use of the douche and the electric current.

I simply suggest the use of an electric douche in these conditions of the stomach and have arranged to have an electrode constructed for that purpose. If an electric douche applied to the surface of the body has a more stimulating action upon the skin than to be immersed in the constant current bath, may we not expect better results from the use of the douche to the stomach than by permitting the patient to swallow the water and then dropping in an electrode. The action of the douche heightens the sensibility of either skin or mucous membrane, quickens motor excitability and can not fail to influence nutrition and absorption by its control over the distribution and circulation of the blood current. The function of the current in either event is to establish artificially the local electro-motive forces which stimulate metabolism. Would it not be possible in this way to bring reflexes under the effects of the stimulation much more readily than by any other method?



Electrode for external use.

I have also used hydro-electric applications of the constant current 3 to 10 milliampères to the face in acne, comedones and the general mal-nutrition of the skin, which exists in these conditions with success, and present an electrode here for such applications.

The same electrode I have found useful in localizing the electric douche, simply or medicated, upon patches of eczema and other diseased conditions of the skin.

Cataphoresis.—The amount of cataphoretic transfer depends upon the quantity of electricity, the coulombs transferred through the partition, the resistivity of the solution and upon the nature of the porous septum. It is independent of the area or thickness of the septum.[8]

A solution of sulphate of copper of requisite strength can be used to advantage in gonorrheal cases. In the later stages of gonorrhea, in conditions of pelvic congestion, uterine catarrh and in some leucorrheas, hydrastin thus diffused would be of much greater efficacy than in its ordinary administration by the mouth, or by means of vaginal injections. Bichlorid of mercury in solution can also be used according to the indications and in strength of 1 to 1,000. In all such instances we are enabled to avail ourselves, not only of the electric diffusion of the drugs, but the physiologic action as well. That drugs thus used enter the local and ultimately the general circulation, no longer admits of doubt. This diffusion takes place, as a rule, from the positive to the negative pole, but in some instances from the negative to the positive.

Appropriate tests will at any time determine the drugs thus used in the urine, demonstrating beyond cavil that it is not a mere topical application, but that there is a systemic influence.

In the treatment of syphilis, Gartner[9] and Ehrmann obtained not only the specific action of bichlorid of mercury upon the disease, but ascertained its presence in the urine as well after from fifteen to twenty minutes' treatment with the galvanic bath, containing from 4 to 6 grams of the drug. The positive pole was used and a current strength of 100 milliampères. These experiments have been corroborated by Kroneld in Professor Lang's clinic in Vienna. In the treatment of gouty joints with bromid of lithium cataphoresis, lithium has also been found in the urine.

Labatut,[10] who asks in general, what are the laws of quantity and quality which govern the transportation of material into the tissues, has chosen lithium for experiments and in the center of a rectangular glass case he put a piece of horse muscle and a solution of chlorid of lithium. Electrolysis was carried on for an hour with 0.08 of an ampère, then the muscle was cut into equal parts and the lithium extracted. Six-tenths of the amount used was found. First there is a transport of lithium into the dead tissues and second, the first effects of this means of introduction is local, the several effects becoming manifest after diffusion into the circulation. Lithium has also been found in the urine by spectral analysis in a patient treated four days.

I have used in these hydro-electric douches a variety of medicaments, among them copper sulphate, zinc sulphate, bichlorid of mercury, iodid of potassium and hydrastinin.

The strength of the copper sulphate as well as zinc sulphate has varied from three to nine grains to the quart. As yet I have not seen fit to use solutions of greater strength, but doubtless shall.

The specific gravity of these solutions is low and their resistivity is high. The amount of transfer I hope to approximately determine, for instance, in the case of a vaginal application by the change in the specific gravity of the solution which has been used cataphorically.

A solution of $CU_2\ SO_4$ grs. iij to Oij has a specific gravity at a temperature of 59 degrees F. of 1.002, a percentage strength of 0.020507 and a resistance of 500 ohms.

Even with a high E. M. F., say 90 volts, a cataphoric douche, vesical, vaginal, rectal or nasal, will only give from 3 to 10 milliampères.

Case 1.—July 14, 1894. Eczema of vulva, six months' duration, intolerable itching and intense burning. Mucous membrane of vulva intensely reddened and irritated. Dilatation of capillaries about meatus urinarius. Same redness extending into vagina. Characteristic vesicular eruptions extending from vulva to thighs and up to abdomen. Treatment: hydro-electric douche, vaginal, negative, 25 milliampères, two and one-half quarts, also to vulva and all irritated parts, one pint, 5 milliampères. Immediate relief. Hyperemia immediately diminished.

July 16, 1894. Reports great relief. Treatment: hydro-electric douche, vaginal, negative, (salt water always used with the douche for negative applications) 30 milliampères, three quarts. Afterward douche to external genitals $CU_2\ SO_4$ gr. vj to a quart, positive, localized also to a protruding hemorrhoid, size of a hazel nut.

Resistance immensely increased and current strength small, with solution of $CU_2\ SO_4$. Hemorrhoid quickly became anemic and diminished in size one-third.

July 18. Marked improvement, practically well.

July 21. No symptoms, all eruptions had disappeared. Hemorrhoidal mass shriveling as before with treatment.

July 23. No itching, no symptoms of any sort.

July 27. Same treatment. Discharged. Improved.

Case 2.—Mrs. C. Ovaritis, right, exudates, right side, and fibroid tumor, interstitial, developed in right and anterior walls of uterus. Pain, soreness, sensitiveness to pressure, cruralgia, constipation, premature and profuse menstruation, impaired health, etc. Here hydro-electric douches only were given, negative, 20 to 50 and 75 milliampères. Result, complete relief of all symptoms, disappearance of exudates with return of uterine mobility, regular bowels, regular and normal menstruation, relief of crural pain and establish-

[7] Berlin Klinik, May, 1894.

[8] Prof. A. E. Kennelly.

[9] Lewandoski Electro-diagnostik and Therapeutic. Wien and Liepzig, 1892.

[10] Labatut (in Revue d'Electrotherapie, January, 1894, page 185.

NOTE.—I have been obliged to give up determining even approximately, the amount of transfer by the change in the specific gravity, as the secretions present in the drainage and the difficulty of maintaining an absolute temperature of the solutions interfere with the accuracy of such an observation.

ment of general health. Fibroid mass firmer, harder and more defined. No increase in size, nor diminution, but utter cessation of symptomatic evidence of disease. Here current traversed tissues of least resistance and expended energy on ovary and exudative mass.

Case 3.—M. M., single, age 31. Vulvitis. Presented herself May, 1894. Mucous membrane of the vulva swollen, red, sensitive and bathed in profuse glairy discharge. General congestion and relaxation of vaginal walls and uterus. Uterus sensitive, cervix slightly eroded. Lower bowel filled with fecal matter. General health markedly impaired, patient excessively nervous. Treatment: electrical douche, vaginal, negative, 30 milliampères, two quarts.

In administering treatment, a certain amount of overflow was purposely allowed, bringing thereby the vulvular mucous membrane much more completely under the influence of the water electrode. Patient left the office feeling very much relieved from the distressing local sensations.

June 2, 1894. Patient reports that she is very much better, local sensations and consciousness markedly diminished. Has lost her anxious face. Looks brighter and more hopeful.

Physical examination: diminished swelling and redness, with no appreciable discharge. Very little sensitiveness. Repeated treatment.

Case 4.—K. I. H., age 28. Intestinal catarrh, began in 1884. During acute attacks, four or five passages a day, at other times one or two. For past seven months, notices at times "pipe-stem" substances, whiter than feces. Occasional pain after stool. Passes a great deal of gas from bowel. Patient easily tired, complains of frontal headache, almost constant for the past three weeks. Patient feels weak, flushes and pales easily, appetite fair, sleeps well.

Sept. 13, 1894. Treatment; hydro-electric rectal douche (two quarts saline solution), 20 to 30 milliampères. Electrode introduced as high as sigmoid flexure. This treatment repeated daily for six days. Steady improvement each day as regards bowels and general health. At present, Sept. 25, 1894, patient has only one movement a day, well formed, gas almost gone, followed by no discomfort.[11]

Case 5.—A. T., age 20, seamstress. July 14, 1894. Atony of the intestine; constipated for past two years, constantly under medical care, much medicine, high injections for four months prior to coming under care, in a kneeling position, followed by movement, but impossible to get a movement without them. Medicine without effect. Gaseous eructations; stools hard, round balls, dark brown color. Face covered with acne. Suffers from much bloating and distension of the bowels. Headache, dizziness, impaired circulation and unhealthy appearance. Four rectal douches were given with saturated saline (rock salt) solution, the electrode carried as far as the sigmoid flexure, with an Apostoli pad, thirty-six inches area over the abdomen. The last three were given consecutively. Two quarts of water were used at each sitting, and from 20 to 30 milliampères of current. The first and second treatments were followed by a free action of the bowels. At the third treatment the stool was much more natural and very free, while after the fourth application there was a perfectly free and formed movement. The patient was very much better, felt well, and looked a different person than when she first came to the office. The headache was relieved as well as the distressing symptoms from which she suffered. She was given to take, after the action had been established, cascara mixture consisting of:

Fluid extract cascara sagrada	4 dr.
Dilute nitro-muriatic acid	3 dr.
Tinct. nux vomica	4 dr.
Elixir calisaya bark	to 4 oz.

One teaspoonful three times daily in wine-glass of water. Patient did not return for further treatment.

Case 6.—K. E., age 38, married. July 20, 1894. Pruritus vulvæ—diabetic—referred by her physician for local treatment only. Sugar present. Polyuria. Violent itching and irritation, for relief of which patient resorts to most extreme measures. All parts of the skin and mucous membrane about vulva thickened and reddened. Small papules scattered over the mucous membrane. Discrete vesicles scattered about the nates and inner aspect of thighs. Treatment: electric douche, vaginal, negative, salt water, three quarts, C. S., 40 milliampères. During progress of treatment patient complained of pain which she likened to labor pain, showing the intense action of the current on the muscular fiber of the uterus administered in this way. Pain ceased with the cessation of the treatment. The electric douche applied to entire external genitals, with douche-pan under patient. From the time of treatment on July 20, up to the morning of July 23, when the patient reported through another person, there had been no return of the symptoms, save a slight irritation that morning. Establishment of menstruation prevented patient's return for treatment July 23, and the day following I left the city for my vacation. Case not followed up.

Case 7.—M. H., age 26, single. July 13, 1894. Referred to me by physician at the Florence Mission. Two years since laparotomy. Removal of right ovary and tube. Now gonorrheal vaginitis and urethritis. Opportunity for infection three months ago. Since, micturition frequent with stinging and burning pain; itching and burning about vulva. Characteristic creamy discharge oozing from vagina and meatus urinarius; extreme redness about vulva; localized redness and discharge at meatus urinarius. Vagina reddened and bathed in creamy discharge. Slight granular erosion of cervix uteri. No sensitiveness of left tube or ovary. Normal in size. Treatment: electric douche, cataphoric, 3 gr. $CU_2\ SO_4$ to quart of water, two quarts. Four applications in all were made, extending over a period of ten days. Current strength from 5 to 20 milliampères. After first application there was no return of the burning, stinging pain upon micturition, no itching, nor smarting of external genitals, and micturition was only of normal frequency. At time of second visit, examination was made three hours after patient had bathed the parts, and there was absolutely no discharge. At time of third visit, slight milky discharge about mouth of urethra, localized. Electric douche, cataphoric, $CU_2\ SO_4$, 3 gr. to the quart, three pints; 6 to 10 milliampères of current was administered at this visit to the bladder by means of the two way vesical electrode. The douche was also applied to the mucous membrane about the mouth of the urethra. No pain nor discomfort Patient discharged July 23, 1894, without symptoms and without any local evidence of disease, the parts only moist as in health.

Case 8.—M. B., age 42, widow. Referred with diagnosis of rectal stricture. Extremely constipated for two years. Subject to violent attacks of pain; colicky; cramping; preceded by inability to empty bowels. Pain relieved by movement consisting of tiny tape-like stools covered with mucus, pale in color. Present condition the same. Daily movement obtained under influence of drugs. Character of stools as for past two years. Appetite fair. Sense of distension after eating, gastric and abdominal, gaseous eructations. Circulation poor, extremities cold. Headache, sense of vertical pressure, dizziness, sense of oppression in chest, easily fatigued, locomotion difficult, sleep broken.

Physical examination: abdomen covered with fat, pendulous, marked distension of cavity. Percussion note extremely dull over transverse and descending colon; resonance poor, entire surface; some tympanites. Rectal examination: sphincter ani normal. Hemorrhoidal veins distended. Digital examination: rectum free in middle and lower thirds. At proximal end of upper third, encountered numerous folds of mucous membrane similar to invagination with sensation communicated to finger as of a doughy mass beyond.

Diagnosis: impacted colon, with fecal tumor at sigmoid flexure. Treatment: rectal electrode carried to sigmoid flexure, negative, Apostoli pad over abdomen, forty-two square inches, positive, two quarts salt water, lukewarm, 15 milliampères for five minutes.

The desire to empty bowels urgent. Resulted in profuse, ill-smelling movement, with large hardened fecal masses, followed by a second movement and a period of extreme exhaustion with chilliness. A half pint of warm water was given by the mouth which, with rest, soon restored patient to her usual condition. In all some six applications were given, 15 to 20 milliampères, for from five to ten minutes, resulting in daily movements. Subsequently Franklinization, with long percussive sparks, was employed, resulting in improved muscular tone. No evidences of a stricture found. Under care two months. Recovered.

DISCUSSION.

DR. WALKER asked the strength of the saline solution for use in the intestinal treatment?

DR. CLEAVES replied that she had used it under and to the point of saturation, usually the former. Quite an important part of the paper was the use of drugs cataphorically in the vagina and bowels, and in nasal applications. So far, she had used sulphate of copper and zinc more than anything else in gonorrheal vaginitis, nasal catarrh, etc.

[11] Patient remains perfectly well and has had no return of her intestinal trouble. The Franklinic current, positive insulation, with long percussive sparks was given to further metabolic processes and encourage nutritional gain.

DR. MASSEY said he had tried the negative electrical treatment of the bowel with some satisfaction in cases of membranous enteritis. He also thought it had a general solvent action on pelvic exudates.

(To be continued.)

Colorado State Medical Society.

Abstract of the Proceedings of the Twenty-fifth Annual Meeting, held at Denver, June 18 and 19, 1895.

[Special correspondence of the JOURNAL.]

(Continued from page 28.)

WEDNESDAY, JUNE 19.

ENLARGED PROSTATE AND ITS SURGICAL TREATMENT

was the subject of a paper by DR. WILLIAM P. MUNN, of Denver. The enlargement of the prostate which frequently causes trouble after 60 years of age is not due to hypertrophy of the gland but to fibroid growths within it. The resulting relaxation of the sphincter causes inability to retain the urine in the bladder, the encroachment of the enlarged gland upon the urethra in front causes retention, and the decomposition of the retained urine renders it acrid, causing pain. He presented some special forms of prostatic catheter. They retained the elevated beak, which he thought the one valuable feature of the ordinary instrument, but were furnished with a longer, flatter, slightly irregular prostatic curve. He thought that so long as the urine could be kept clear, retained from three to four hours, and passed without pain, palliative treatment was to be relied on. But when in spite of the best care the urine became cloudy, could not be retained more than an hour or two, and suffering was impairing the patient's general health, that operative measures should be promptly resorted to, before the general condition became such as to render improbable a favorable result. He would first resort to prostatotomy, perineal or suprapubic according to the case; and would reserve castration as a last resort. He reported six cases operated on, with two deaths and two complete recoveries, one of the latter only after castration.

IS BICYCLE RIDING A CAUSE OF IMPOTENCY?

DR. JOHN T. DAVIDSON, of Denver, thought that as bicycle riding became more general the number of cases of impotency would be found to be on the increase. He had not found any riders who admitted such an influence on the part of the wheel, and did not think it a necessary result from proper riding. But stimulation of the perineum would in time render it less sensitive to other stimuli; and traumatism, especially from riding on an improperly fitted saddle, was likely to aggravate or excite other troubles that are recognized as causes of impotency.

"Alopecia Prematura" was the subject of a paper by DR. J. M. BLAINE, of Denver, who attributed it chiefly to two causes—the custom of using water on the hair at too frequnt intervals; and frequent shaving, which by a counter stimulation of the face tended to lessen the nutritive supply of the hair follicles of the scalp. The share of this latter factor was indicated by the fact that among races that plucked the beard, or had little beard to start with, idiopathic alopecia was unknown. Of predisposing causes, he regarded heredity as more common than disease of the scalp during childhood.

DR. P. R. THOMBS, of Pueblo, read a paper on "Epilepsy, Its Causes and Treatment." Definitions as to what constitutes epilepsy vary considerably, and its pathology is uncertain; but the neuropathic tendency seems to be the one constant essential condition. The term idiopathic, applied to epilepsy does not mean that it is without cause, but that the cause has not been discovered. A sharp distinction is to be made between reflex and traumatic cases; the prognosis for the latter being more favorable. He believed that few chronic troubles are so much helped by treatment, but that the treatment must be carefully adjusted to the particular case. A considerable proportion of cases are related to the uric acid diathesis, which can best be controlled by regulation of the diet.

"A Case of Myxedema" was reported by DR. W. J. ROTHWELL, of Denver. A man of middle age had typhoid fever four years previously, had since been losing strength and gaining weight, and presented a typical case of this affection. Under the use of thyroid extract he lost thirty pounds in weight and got quite well. The dose first given, 5 grains three times a day, had caused tachycardia and diarrhea, and had to be reduced to 3 grains. After his recovery the remedy was continued in the dose of 1 grain three times a day, as the thyroid gland seemed to be entirely atrophied.

DR. E. R. AXTELL, of Denver, reported a case of "Toxic Paraplegia." The patient was a man of 23 years, who had begun to drink liquor at 8, and had frequent sprees before he was 12, had smoked cigarettes since he was 9, and had for three and a half years worked at painting. He had probably suffered from multiple neuritis and meningio-myelitis.

"A Case of Pseudo-hypertrophic Muscular Paralysis" was reported and exhibited by DR. J. W. HIGGINS, of Denver. The patient was a boy of 15, of healthy Italian parentage. He had been noticed to stumble easily at 1 year, and at 5 years the enlargement of the calves was perceptible. The hypertrophy was marked in the lower extremities, but in the thorax and back, atrophy predominated.

THE DIAGNOSIS OF CHRONIC CEREBRAL ABSCESS.

DR. J. T. ESKRIDGE, of Denver, presented an elaborate paper on this subject. The differentiation of acute abscess of the brain may present great difficulties, but chronic abscess taxes the resources and skill of the most experienced clinician. Etiology may fail to aid because the manifest cause is only one of several causes that have to act together to produce the result. The same cause, too, may produce in different cases very different effects. A patient with otorrhea of sixteen years standing, and who had received a blow on the head, died of brain tumor. The autopsy in the case of a boy with otorrhea, psoas abscess and a head injury showed a small tumor. On the other hand, the autopsy in the case of a man of 70, suddenly seized with symptoms of apoplexy, with no cause for suppuration, showed chronic cerebral abscess.

The symptoms of chronic abscess are common to other forms of organic disease of the brain. Conclusions from accurate histories may lead astray, but usually will indicate the truth. The cause may have been forgotten but may be brought out by careful questioning. Headache is usually pronounced, especially in the terminal period. The typical temperature is normal or subnormal. Optic neuritis is a valuable sign when present, and it is more frequently present than absent. He concluded that the diagnosis of chronic cerebral abscess was often most difficult, and sometimes impossible; that resort to operation should not be limited to cases in which the diagnosis was certain; that the physician who never recommends an exploratory operation in a probable case of abscess cares more for his own reputation than for the good of his patient.

"Opium Poisoning" was the subject of a paper by DR. CARL JOHNSON, of Denver. It was based on fifty-five cases, of which eight were fatal. In all but two, the drug had been taken by the mouth. In thirty-five cases the stomach tube was required; the others were treated by emetics. As an emetic he preferred apomorphia, one-tenth of a grain given hypodermically, but it should never be resorted to after unconsciousness, as it was then useless, and tended especially to cause cardiac depression. As to stimulants, he regarded strychnia as the most valuable. Atropia was of little value. Potassium permanganate was of value to destroy the portion of the drug remaining in the stomach; but his experience with its hypodermic use to neutralize the poison in the circulation had been very unfavorable, the injections causing great rise of temperature and aggravation of the symptoms, beside local trouble if the patient recovered. In discussion, several physicians expressed confidence in the value of atropia.

CASTRATION THE REMEDY FOR CRIME.

DR. B. A. ARBOGAST, of Breckenridge, read a paper on this subject. The rational solution for the problem of crime was to be sought in the restoration to normal condition of those capable of such restoration, and the speedy extinction of those not capable of it. The physician is the proper one to suggest the remedy. For the rapist and other sexual criminals the appropriateness of castration would scarcely be questioned. It was the province of the Government to provide such treatment as was necessary to enable these defective individuals to become good citizens; and to effect the extermination of the criminal classes.

DR. E. STUVER, of Rawlins, Wyo., read a strong plea for "Asexualization for the Limitation of Disease and the Prevention and Punishment of Crime." Self-preservation is the first motive of action, and next to it comes the sexual instinct. The conditions of city life are such as favor the development of certain forms of vice and crime; and the great charitable institutions of the day assist, by preventing the extinction of the vicious and the criminal, that otherwise would naturally occur. It was time for the medical

profession to turn its attention to the prevention of venereal disease, the scourge of our civilization. There is a widespread tendency to do away with harsh punishments, that formerly had a tendency to check the propagation of the criminal classes. The frequency of lynching shows a prevalent lack of faith in the present penal provisions. There are three indications to be met: punishment for the criminal act, the restoration of the criminal to usefulness in society, and the prevention of future crime. Asexualization meets these indications better than any other remedy. The deterrent effect on others would be most powerful, and it would often convert the most dangerous criminal and disseminator of disease into a useful citizen.

THE RESTRICTION OF TUBERCULOSIS.

Upon this topic the society was addressed by DR. VICTOR C. VAUGHAN, of Ann Arbor, Mich. He said that with the observance of certain rules, now fairly understood, the healthy and the tuberculous might mingle with impunity. The place in which one is most safe from infection is the properly kept surgical operating room; and so with the observance of the proper precautions the place where the tuberculous congregate may be kept free from danger as regards tubercular infection. But no climate is so salubrious but that local conditions can vitiate its value, and a place that may be good for the infected to live in, might become very bad for the healthy to visit. He believed that, primarily, tuberculosis was usually an unmixed infection, and as such was rarely fatal. Secondarily it becomes a mixed infection, and tends toward a fatal termination.

To restrict tuberculosis, the sale of tuberculous milk and meat must be prevented. Cattle should be submitted to the tuberculin test, in which he had great confidence. Sputa must be efficiently taken care of and disinfected. To accomplish the object mere verbal instructions are not sufficient; the rules printed and circulated by boards of health, and the directions given by physicians do good, but they are not enough. Details and practical processes must be taught by personal instruction. He advocated the establishment of schools for the instruction of consumptives in the care of themselves and the disinfection of sputa. Such institutions should be State hospitals. They would ameliorate the condition of the patient, and prevent the spread of the disease. Such a plan would be expensive; but how great is the loss now sustained through the 150,000 annual deaths from this disease. We have a parallel for the undertaking in the eradication of leprosy from Europe by the segregation of the lepers. It would not be necessary that chronic cases of tuberculosis should remain permanently in such institutions. After they had learned to take proper care of themselves and their sputa they could live in their own families without danger.

DR. E. R. AXTELL showed a case of "Chronic Internal Hydrocephalus with Spina Bifida." The child was a year old; hydrocephalus had been noticed at three weeks of age. There had been no convulsions. The connection between the fontanelle and the spinal tumor, and their reciprocal relaxations as regards pressure was very noticeable.

"The Germ Theory" was the theme of an elaborate adverse criticism by DR. E. L. WOOD, of Pueblo. He pointed out that many theories generally held in the past have been found wholly false. The presence of the microbe in disease merely proves that the disease furnishes the conditions necessary for its growth. Of no disease known to man is it proved that it depends on a microbe.

THE EXTINCTION OF COMMUNICABLE DISEASES.

This was the general title of a series of brief papers and addresses. In some introductory remarks DR. MUNN said, that experience with a century of vaccination, and recent experience with cholera in this country and in Europe seem to justify the discussion of this subject. Respecting the general bacteriologic status of the subject, Dr. Crouch said: It must always be remembered that the germ is not the disease. In every case there is the question of the seed and the soil. It may be as necessary to strengthen the defense as to avoid the attack. We must still consider the possibility of specific diseases originating *de novo*, that is by the variation of non-pathogenic into pathogenic bacteria. For instance, the possibility that the tubercle bacillus may exist in a non-parasitic form.

DR. HENRY SEWALL spoke on "Tuberculosis Contracted in Colorado." It is very difficult to say where any case of tuberculosis is contracted, but practically we may assume that cases beginning here were contracted here. In other health resorts, tuberculosis has become more common. The climate of immunity is a myth. The propagation of the disease among new races was directly in proportion to their contact with the race harboring the disease. In four years twenty-one cases of the disease contracted in Colorado had been observed. Of these fifteen had been pulmonary, and thirteen had died. In eleven the sputa had been examined, and in five autopsies had been made. Eighteen of the patients had been in the State from two to twenty-three years, fourteen for over five years. In the last two years 100 deaths had been reported in Denver from tuberculosis contracted within the State, about 12 per cent. of all such deaths in that period. He concluded that tuberculosis contracted in Colorado was not infrequent; and that when so contracted it was extremely dangerous.

"Is Diphtheria Doomed," was the topic assigned to DR. F. E. WAXHAM, of Denver. He thought that while the weight of testimony was in favor of the use of antitoxin, the claim that by it diphtheria was doomed was not sustained. Smallpox has never been stamped out by vaccination, and the immunity afforded by antitoxin was only temporary. He believed it the best remedy we possess for diphtheria, but it had its limitations. It should not be used in the mild cases that were sure to recover without it. Among nineteen cases treated with it in Denver, in all of which the diagnosis was confirmed by bacteriologic examination, but three had died.

"On Scarlet Fever and the Public Schools," DR. C. F. SHOLLENBERGER, of Denver, said: An important factor in the spread of the disease is that light cases sometimes attend school throughout their course. Others are not diagnosed so that other children from the family continue to attend. When it is ascertained that a child with the disease has been in attendance, the school should be closed until thoroughly disinfected. Children known to have been exposed should be excluded. It should be a duty of scholars and school officers to report all cases to the board of health. It might aid to have some school officer a member *ex-officio* of the local health board. Boarding schools should also be under the supervision of the health authorities. The spread of such a disease is favored by the lack of accommodations for the outer clothing of the scholars, which is therefore piled promiscuously together; and through library books.

"Typhoid Fever and the Agencies that Contribute to It," were discussed by DR. S. A. FISK, of Denver. It was chiefly spread through drinking water and milk. In a few cases nurses take it by contagion. It is very difficult to entirely control a water supply, and failing this we must resort to boiling. Freezing does not protect. Attention must be paid to each individual case, especially to disinfection of the stools. If the medical profession would take the trouble, the disease could be, if not eradicated, at least controlled.

"On Surgical Infective Diseases" DR. LEONARD FREEMAN, of Denver, said: We hear too little of dangerous doctors; the doctrines of surgical cleanliness are still too little preached. The needs of surgical cleanliness are bringing the mass of surgical work to specially trained surgeons in well-equipped hospitals. As to infective venereal diseases, inspection has utterly failed to limit their spread. The most potent influence at our command for this purpose is education. False and dangerous modesty should be cast aside. Gonorrhea is more difficult to deal with than syphilis, because it is not so much feared, and it shows no tendency to lessened virulence.

THURSDAY, JUNE 20.

THE LOCOWEED (ASTRAGALUS MOLLISSIMUS).

A chemico-toxologic study was reported by DR. CARL REUDI, of Denver. The symptoms produced by it, especially in the sheep, closely resemble those of cerebro-spinal meningitis. But the temperature is depressed, or not elevated except by intercurrent pneumonia. The most striking post-mortem appearance was the extreme anemia of the brain. The active principle is difficult to isolate, and seems not to be a glucoside but an associated acid.

DR. H. B. WHITNEY, of Denver, reported two cases of "Abscess of the Liver" and a third case of hepatic disease, not abscess but with hectic and other symptoms closely resembling that condition; with some general observations on the diagnosis of such conditions.

"Mal-assimilation Due to Chronic Gastro-duodenal Catarrh" was the subject of a paper by DR. W. L. DORLAND, of Pueblo. He compared it to the conditions produced by chronic poisoning by lead and arsenic, and called attention to the importance of auto-infection, and the sterilization of the alimentary canal as an essential part of the treatment.

"Dilatation of the Stomach" was discussed by DR. H. C. CROUCH, of Denver. The important fact is not so much

dilatation as stagnation. The clinical meaning of the term is, a condition in which the contents do not pass from the stomach at the proper time, as when it is not empty in the morning after an ordinary meal the night before. He believed that in the treatment of this condition washing out of the stomach was not so often necessary as the practice of some would indicate. For cases not relieved by medical treatment he urged recourse to surgical interference. Gastro-enterostomy was a comparatively simple and safe procedure, and gave brilliant results.

The Committee upon Sanitation and Preventive Medicine reported upon the need of prophylaxis against phthisis in Colorado. Of 812 cases terminating in death within the last two years in Denver, 549 were known to have originated outside of the State; in 163 the place of origin was not known, and in 100 it was Colorado.

DR. H. W. MCLAUTHLIN, of Denver, reported a case of Addison's disease lasting five years. The autopsy showed atrophy of the suprarenal bodies and tubercular disease of the lungs.

The American Neurological Society was invited to hold its annual meeting for 1897 in Denver.

"Vomiting of Pregnancy and its Treatment" was the subject of a paper by DR. P. J. MCHUGH, of Fort Collins. He regarded it as a reflex nervous disturbance, but had found that in the severe cases there had been some pre-existing stomach trouble to which treatment should be directed. He recommended resort to the use of the stomach tube for purposes of diagnosis, and if needed for treatment.

DR. T. M. BURNS, of Denver, described his plan of "Abdominoscopy in Obstetrics." He pointed out that in vertex presentations, on account of the flexion of the head, the forehead was more prominent than the vertex, and was the part to be sought for.

"The Management of Retained Placenta," in the hands of DR. G. H. STOVER, of Eaton, was: If after ten or fifteen minutes the Crèdé method did not bring it away, to insert the hand and break up the adhesions which, in his experience, were always present in such cases.

DR. T. E. TAYLOR, of Denver, reported a "Case of Symphysiotomy." The woman was aged 33; four previous deliveries had been by craniotomy, and she had been in labor several hours, the membranes having ruptured ten hours before the operation. The conjugate diameter was two and five-eighths inches. The bones separated to two and one-half inches as the head passed. The child was healthy; the mother left the hospital on the ninth day and was about her work after three weeks; there remained no movement of the pubic bones, and her gait was normal.

"Disease of the Uterine Appendages." DR. SOL. G. KAHN, of Leadville, said that inflammation of these organs was due to gonorrhea and septic trouble after abortion. Every case of metritis will extend to the tubes if neglected, but if metritis be properly treated we will have few cases of salpingitis. He urged the curetting of the uterus, and local treatment, including ichthyol tampons, and applications of aluminum acetate to the cervix.

DR. T. A. STODDARD, of Pueblo, believed that disease of the appendages occurred through extension of uterine disease, first to the tubes and from them into the abdominal cavity. All cases of peritonitis were due to the escape of some irritant into the peritoneal cavity. It should be remembered that fourteen women die of peritonitis to one man. We should not permit a woman to carry around pus tubes, and call it conservative surgery. As to the talk of unsexing a woman, it should be remembered that the sexual life of woman is threefold, as woman, wife and mother; and that in two of these respects she was already unsexed when we come to consider the removal of diseased appendages.

DR. W. A. JAYNE, of Denver, read a paper on the "Management of Pelvic Suppuration in Women." He pointed out that in many cases extirpation of the uterine adnexa had not given relief. Lately, removal of the uterus also had been tried, either by the abdominal or vaginal method, and this seems now to give better ultimate results; but it is still too soon to judge. That prompt removal is the only proper treatment for purulent inflammation is at variance with the accepted principles for the treatment of all other organs except the vermiform appendix; and it, being functionally useless and prone to degeneration, did not offer a parallel case. More careful study of these cases may show that a considerable part of them can be cured by evacuation of pus through natural channels, or artificially through the vagina, with or without the aid of celiotomy. He reported two cases in which treatment on this plan had secured recovery.

DR. I. B. PERKINS, of Denver, reported a series of cases of "Hysterectomy for Fibroid Disease." In one case the growth was of five years' standing, the uterus measured thirteen inches, was as large as at full term, and weighed fifteen pounds.

Meeting of the American Public Health Association at Denver. DR. HENRY SEWALL called attention to the meeting of this Association to be held at Denver October 1 to 4, and urged the special interest that Colorado had in the success of the meeting.

THE PRESIDENT'S ADDRESS.

In the Annual Address DR. WORK said, that of the sixteen who met to organize the Society in 1871, but five remained upon its rolls. Since that time medicine had undergone a revolution. There had been division and subdivision until the danger now was from excessive specialism. The need of the day was the diagnostician; and there was danger of his being supplanted by the exploratory incision, and the post-mortem section. The work lying nearest to this Society was the scientific study of tuberculosis. Its opportunities for the scientific investigation of climatic influences were unequalled, and free facilities for bacteriologic diagnosis were offered to every physician in the State. He urged the establishment of national sanatoria for the treatment of consumption, and suggested the appointment of a committee to confer with the coming meeting of the American Public Health Association, and memorialize Congress upon the subject. His suggestion was adopted.

After the final reports of committees, the election of members and officers, and the installation of the newly elected President, DR. I. B. PERKINS, of Denver, the Society adjourned.

The social features of the meeting included a *conversazione* the first evening, a theatrical entertainment the second, and a banquet to the visiting members by the profession of Denver the third evening, who contributed their share to the success of the meeting.

Proceedings of the Convention of Bacteriologists.

Academy of Medicine, New York, June 21 and 22, 1895.

The Bacteriological Convention called by the Water Committee of the American Public Health Association met in the Academy of Medicine, New York, at 10 A.M., June 21, 1895. Over forty bacteriologists, representing prominent colleges and boards of health, were present when the meeting was opened by Major Charles Smart, U. S. A., Chairman of the Committee, who briefly explained the object in view as being the full discussion of certain points, the settlement of which was needful to enable the Water Committee to perfect a scheme of laboratory methods for adoption in a coöperative investigation into the bacteriology of water supplies. Dr. Smart then invited Professor Welch of Johns Hopkins University to take the chair and proceed with the special work of the Convention.

It was evident from the program, Professor Welch said, that the subjects for consideration related almost exclusively to certain technical matters which must be settled before any coöperative investigation could be undertaken. He suggested a strict adherence in discussion to the questions submitted, and called upon Mr. Geo. W. Fuller, of the Lawrence Experiment Station, to contribute his views on the first question: What method shall be followed in neutralizing all media and what standard degrees of reaction shall be adopted? Mr. Fuller presented an able and interesting paper full of important results of original laboratory experiments. He commented on the fact that although bacteriologists generally acknowledge the importance of the reaction of their culture media, no special study has been given to the subject which remains now in practically the same condition as when first described by Koch fourteen years ago. He then cited numerous instances of the sensitiveness of pathogenic bacteria to the reaction of media and of alterations in pigmentation, phosphorescence and morphology due to change in the degree of alkalinity. He recommended phenolphthalein as an indicator with sodium hydroxid to effect neutralization; and for convenience and accuracy in expressing the acidity or alkalinity of a medium he approved of the chemic method of giving the number of cubic centimeters of a normal acid or alkali needful to effect neutralization per liter of the medium. He had ex-

perimented also with various other indicators and had found that the neutral point of meat infusions, etc., as established by litmus is many cubic centimeters on the acid side of the same point as established by phenolphthalein. Thus, so-called neutral solutions may in reality be very different, varying as much as 25 c.c. normal acid or alkali per liter in some instances. Mr. Fuller's experiments showed that the best culture results are obtained when the medium is 18 c.c. per liter on the acid side of the phenolphthalein neutral point. It will be observed that this solution is several cubic centimeters on the alkalin side of the litmus neutral point. His directions to secure a standard alkalinity of medium are to determine in a small quantity of the liquid the number of cubic centimeters of normal caustic soda to be added to the stock to make it neutral to phenolphthalein and having added this to it then add normal hydrochloric acid in the proportion of 18 c.c. per liter. The paper was discussed by Professor Welch and Drs. Kinyoun and Theobald Smith, the general tenor being in accord with the views expressed by Mr. Fuller as the result of his investigations.

Discussion on the second question was opened by Professor Sedgwick, of the Massachusetts State Board of Health: What effects on species differentiation are produced by the ordinary differences in composition of peptone, meat juice, gelatin, etc.? In the discussion that followed was embodied Mr. Fuller's presentation of the third question: What media shall be used for all species differentiation and how shall they uniformly be prepared? The relative advantages of meat infusion and beef extracts, agar and gelatin were considered. Distilled water was generally accepted as desirable in making the media. Dr. Abbott was in favor of meat extracts in place of infusions, because the extract is taken in large quantities of all sorts and kinds of meat and comes nearer to representing a mean than any single sample of meat; moreover it is very convenient. Dr. Kinyoun objected to extracts, particularly to Liebig's on account of its varying proportions of salt; he preferred veal infusion. Dr. Welch had never met with this diffieulty and liked the extracts for routine work. Mr. Fuller and Drs. Moore, Cheesman and Johnston coincided with Dr. Kinyoun in his preference of meat to extracts; and Dr. Welch considered that the sense of the meeting was in favor of the infusions, for while instances of failure to grow in extracts had been brought forward, no one had instanced a failure in the meat infusions. Dr. Theobald Smith discussed the propriety of adding glucose and Dr. Welch the quality of peptones and the character of the gelatins. The jellies made from the latter varied much in acidity and the solidifying point was extremely variable. Dr. Sedgwick preferred hide gelatin because it was a better nutrient and clearer, although it liquefies at a lower temperature. Dr. Johnston, in reply to a question said it was impossible to get anything profitable from Iceland moss. As to the relative value of gelatin and agar, the former gave as much in two days as the latter in four. There was some difficulty in getting the proper degree of alkalinity, on account of changes taking place after it was put in the sterilizer; but he explained how this could be overcome. Mr. Fuller and Dr. Sedgwick detailed their practice at Lawrence with agar and claimed better results than with gelatin. The question of sterilization was then considered by Drs. Abbott, Cheesman, Kinyoun, Welch, Mr. Fuller and others. The potato as a medium was objected to by Mr. Fuller as inconstant in its results. Drs. Abbott and Welch sustained the cause of the potato. The gas production is an important point and the presence or absence of discoloration. Milk was considered of limited value as a medium by Mr. Fuller, but many others believed that it would be a loss to give up its use; its coagulation and the development of acidity were valuable for differentiation. The use of sterilized asbestos wool as a filtering medium was eulogized by one speaker. The discussion ended by a consideration of the subject of preparing large quantities of medicine at one time and of making these available for use when required.

The discussion of the second and third questions was unfinished when the morning session was ended by an adjournment until 3 P.M. It was resumed when the convention met again at the hour named.

Professor Jordan, of the University of Chicago, who was on the program to open discussion on the fourth question: What shall be the medium for and the conditions of the stock culture from which all media are seeded? was unavoidably absent; but Mr. Fuller explained his views. The keeping of stock cultures in an ice box also came in for consideration.

Professor Sedgwick opened discussion on the fifth question: What shall be the systematic detailed method to be followed in observing the results of cultures and the manner of recording them? If we take the results of any good bacteriologist and see how he describes his species fully and carefully, with obvious attempt to be accurate in observation and full in report, we may learn how to do this. Dr. Cheesman thought it would be a good thing to have some kind of chart or a table on which the record could be made. As pertaining to this branch of the subject, the paper of Prof. E. B. Shuttleworth, of University of Trinity College, Toronto, on the nomenclature of colors for bacteria, was presented. This paper was an effort to get as near to precision as possible, in view of the different appreciation of color tints, shades and hues by different individuals. The various primary and common colors were tabulated with their modifications, the qualifying words, pale, light or medial and dark being used to denote gradations of the same hue.

Dr. Cheesman then submitted his paper on the sixth question: What method shall be adopted by which full benefit may be derived from morphologic characteristics? He reviewed the main groups of cocci, bacilli and spirilla as subdivided by morphologic characters, shape, structure, size, formation of spores, flagella and capsule. The greatest benefit may be derived from these characters only by having them fully developed and plainly visible. For their development it may suffice to carry each species through a single routine method of cultivation on a standard medium, or perhaps two, or even three, routine methods. Various methods of staining must be used. The adoption of a systematic uniform plan to be followed in all examinations will lead to better results than have been obtained in the past. The discussion on the subject was very animated and dealt with a standard medium for morphologic characters or many different media to exhaust all possibilities of development.

The seventh question: What tests shall be used for separating bacteria into clearly marked groups? was answered by Dr. Wyatt Johnston, of the Provincial Board of Health of Quebec. He referred briefly to twenty tests in common use and to various modifications of these. He concluded that there was a certain want of individuality about the water bacteria as described by their discoverers which prevented the average amount of intelligence which he had at his disposal from grasping the subject in a way that would make a fellow feel that he had mastered it; and this was the result of the complication of these tests of bacteriologic classification. He proposed a system of cataloguing and cross-indexing by which the labor of studying and looking into the affinities of species might be lessened. This was favorably regarded by the convention, and he was requested to submit a practical outline of his system. In connection with this subject, a paper by Prof. H. L. Russell, of the University of Wisconsin, was submitted. This paper was special in its character, and related to the peculiar method of branching in the genus *Cladothrix*, found in stagnant waters. The *C. dichotoma* and the *C. intricata* were described and figured. These, although filamentous in their growth, are essentially bacilli. The meeting then adjourned until 10 A.M. the following day.

The convention was called to order at 10 A.M., June 22, when Surgeon-General Sternberg's paper was read by Dr. Smart in the absence of its author. This was on the eighth question: What shall be the method followed in determining the relation of bacteria to temperature? General Sternberg discussed first the most favorable temperature for development; secondly, the extreme limits within which development occurs and lastly, the thermal death point. The first and second are to be determined by culture experiments made at gradually increasing fixed temperatures until the desired information is obtained. In ascertaining the thermal death point the temperature or the time of exposure should be fixed. We may ascertain how long an exposure is required at a given temperature or how high a temperature is required in a given time. He recommended an exposure of ten minutes to fixed temperatures, rising 2 degrees Cent. in each experiment until the death point was reached. This is determined by culture experiments showing the sterilization of the medium containing the bacteria operated on. The cultures should be incubated for seven days before the result is recorded. In applying heat to determine the death point the water bath was recommended, with the tube containing the bacteria and the thermometer on a glass stand at mid-depth of the water. The thermometer should be accurate and the temperature of the bath properly regulated. When not otherwise specified the death point should be understood to refer to the temperature which in ten minutes' time destroys the vitality of all the cells in a liquid medium. The spores of bacilli have a far greater resisting power to heat than the vegetative cells and the question of their

thermal death point must be determined separately. With spores which resist the boiling temperature it is best to state the time required for their destruction by a temperature of 100 degrees Cent. The thermal death point depends to some extent on the age of the culture. For bacteria which grow in our standard neutral flesh peptone solutions the use of a culture kept at 37 degrees Cent. for forty-eight hours was advised; and to secure uniform conditions 3 oese of the culture should be added to 5 c.c. of distilled water for the purposes of the experiment. In his own practice, capillary tubes containing a small quantity of culture, not diluted, were used; but he considered that for general use it would be best to recommend the test tubes of hard German glass which are always on hand in bacteriologic laboratories, specifying the diameter of the tube and the quantity of fluid, 5 c.c., which it should contain. This subject was discussed by many of the members, the views of Dr. Sternberg being generally accepted; but a strong tendency was manifested toward the acceptance of the capillary pipette instead of the test tube. The importance of immediately cooling the tube as soon as removed from the bath was also insisted upon. The recommendation was made to thrust it at once into the water so that the high temperature should cease to act upon it.

The ninth question: What special methods are of value in the isolation of pathogenic bacteria in water? was submitted for discussion by Professor Abbott of the University of Pennsylvania. As to special methods of development, he held that there has been no general work done, nothing that would be of use to the working bacteriologist. There are scattered observations relating to the typhoid bacillus and its isolation. The degree of reaction is important and the method of injection into animals. Mechanical separation, artificial filtration, fermentation and precipitation by coagulants were also discussed. While on this subject, Dr. Kinyoun described a standard dye method with fuchsin by which differentiation may be effected. Commenting on this, Professor Welch considered it one of the most encouraging things that we had at last an elected method for the isolation of the cholera spirillum; but on the other hand it is a source of regret that we have no similar mode of procedure for the typhoid bacillus. Dr. Abbott stated his results with this bacillus to have been most inconstant. The general feeling now, said Professor Welch, in regard to this matter is one of uncertainty as to whether any one has ever isolated the typhoid bacillus from drinking water. Professor Sedgwick referred to an epidemic of typhoid fever at Providence, R. I., where filters were sent to Professor Prudden. This brought the latter gentleman to his feet with a smiling remark to the effect that we can not know what is going to happen in science during the next ten years; and that had he known that this convention would meet here to-day he might not perhaps at that time have considered typhoid as emanating from the invisible growth on potatoes. Professor Welch referred to an impression existing, especially among boards of health, that bacteriologists are expected to report whether or not the typhoid bacillus is really present. Dr. Hewitt of Minnesota, referred to the positive diagnosis of typhoid bacilli that had been given to boards of health by bacteriologists and considered that the preceding remarks were somewhat discouraging. Dr. Sedgwick acknowledged that so far as pathogenic bacteria in water are concerned we are unable to make the positive diagnosis which Dr. Hewitt desired. It seemed to him, however, that if this were the only thing that boards of health in their history had to take back water on it would be well to discourse largely on it; but there are various things boards of health have had occasion to regret that they have done and he did not see that this was any greater than the others. He knew Dr. Hewitt had been misled by not keeping on tap in his office a good bacteriologist. Dr. Benjamin Lee of Pennsylvania, thought on the whole that it was a good thing that we are tending toward the solution of the broad problem of the various drinking waters rather than of one particular pathogenic organism; and this brought the convention back to its special work.

Professor Welch then presented his views on the tenth question: What shall be the mode of procedure in determining the pathogenesis of bacteria found in water? He spoke of the propagation of cholera, typhoid fever, dysentery, etc., by water. There is no satisfactory evidence of the spread of malaria by drinking water although there are those who believe in this infection. The pathogenic properties of water should be tested as a routine procedure. He preferred bouillon cultures of forty-eight hours, .1 c.c. injected by means of an ordinary hypodermic syringe into the peritoneal cavity of a mouse. The probability of a negative result is great; and if the mouse does not succumb the chances are that a larger animal would not. All biologists should insist on a more careful pathologic study of lesions as they are often of the greatest interest. Bacteriologists are apt to consider an organism as pathogenic only when it kills; yet animals are frequently made very ill from certain species of bacteria and yet recover. Sharp distinction should be made between infection and intoxication. The discussion was general. At its conclusion Drs. Sedgwick and Welch referred to the need for care in the language used in reporting experiments on animals. The latter cited the expression of a writer: "I now see that these experiments were of no use and really appear to me absurd," which was caught up by the Humane Association and used for a violent attack on pathologists in a pamphlet recently issued.

The paper of Professor Adami of McGill University, treated the eleventh question: How is variability of species to be regarded? The difficulty of the subject of differentiation was clearly stated. Experimentally in the test tube it is a matter of comparative ease to so vary the properties of bacteria that were one to be given the modified forms, without any information as to the previous treatment undergone by them or their predecessors, it would be impossible by the ordinary methods employed for the differentiation of species, to arrive at any other conclusion than that we were dealing with a form of microbe totally distinct from the parent species, in fact, with a totally distinct species. If this be true of experimental modifications, how are we to become assured that many of the closely allied forms which we encounter in the bacteriologic study of water, air, soil and cases of disease are truly distinct species? How can we protect ourselves against a multiplication of described species, as unwise and depressing as it is scientifically false? We know from experiment that comparatively slight changes in environment acting over a long period impress modifications on bacteria quite as surely and strongly as do great alterations acting for a short time. We know that time after time in the study of the bacteria of water, as in those of disease, we encounter forms which while in general harmonizing, depart in some particulars from the classical description of well-recognized species. We are becoming hardened to the departure from type of some of the pathogenic species, so much so that the tendency among those dealing with the bacteriology of disease is to regard closely allied forms possessing pathogenic properties of like nature, not as separate species but as races and varieties of a common stock. This may not in itself be scientifically accurate for in most cases no attempt is made to demonstrate the relationship. Nevertheless, to take the opposite view and regard each form that departs in any particular from the text-book description as constituting a separate species is to drop into a bacteriologic Babel of confusion.

Professor Adami then referred to the varieties of domestic animals and plants and to their tendency, if permitted to return to a state of nature, either to die out or in the course of a few generations to regain largely or entirely the characters of the original stock. With bacteria the same is to a great extent true, and he suggested as a means of discrimination, the method of keeping doubtful forms under observation for some months upon standard media. If allied forms be grown on ordinary media which have not been prepared with a view to accentuate differences, the effects of the continuance of a common environment will eventually remove those characteristics which are temporary impressions due to previous modified environment, and in the course of a few weeks or months, forms that are varieties will revert to type. He recommended that each describer of a new species be expected to report its condition at the end of a year, and whether it has reverted to type or has continued to present characteristic differences.

Dr. J. J. MacKenzie of the Board of Health of Ontario opened discussion on the last question: What new methods can be suggested for the separation of bacteria into groups and for the identification of species? He referred to the advantages to be derived from the use of synthesized media. He pointed out the variability and the unknown chemic composition of the media now in use. Beef broth is an unknown quantity; and the composition of peptone is variable. Practically, the bulk of the material of the commercial peptones consists of albumoses of various kinds. Witte's peptone which Kühne found to be the most satisfactory is almost entirely made up of albumoses. Gelatin and agar also are variable, but as solidifying agents we can not do without them. Dr. MacKenzie then sketched the history of the effort to obtained synthesized media, giving the methods of preparing many of them and the results obtained from

them. He then detailed his own experiments in this line, particularly in plate cultures of water bacteria. He touched also on the advantage that might be taken of Beyerinck's respiration figures and of the formation of nitrites and hydrogen sulphid in the study of water bacteria. He concluded that in the study of all these physiologic chemic reactions of bacterial cultures the necessity of exact chemic composition is absolute, otherwise it is impossible to make comparisons. With a chemically pure medium, synthetically formed, we can speak with definiteness of the formation of nitrites, ammonia, hydrogen sulphid or any of the other products of bacterial life.

In connection with this, Dr. V. A. Moore, of the Bureau of Animal Industry, submitted a paper on the nature of the flagella and their value in the systematic classification of bacteria. The author dwelt first on the difficulty of obtaining constant and uniform results by any of the methods heretofore devised for demonstrating the filaments, and then on the impossibility of making a classification by the filaments agree with our present natural grouping. The *Monotricha*, for instance, or those having one flagellum at the pole of the bacillus, would include bacilli, spirilla and at least one micrococcus. Certain of his experiments have demonstrated that in the grouping of pathogenic organisms the flagella have little or no significance. Differences in the motile filaments of the same species of bacteria are quite as great as those found to exist in preparations of various species; thus the flagella of the hog cholera bacillus differ in different preparations, and often in different fields of the same preparation, quite as much as they differ from the flagella of the typhoid or colon bacilli. Until the nature of the flagella-producing substance is better understood, the only significance which can be given to these appendages in classifying bacteria is to determine their number on the individual organism, their length, general appearance and peculiarities, and include such data in the morphologic description of the bacilli.

In the course of the proceedings of the previous day it had been decided that no vote would be taken on any of the questions, but that the whole series would be referred to a committee of five, the chairman to be one of the members. After the discussion of the twelfth question, Dr. Prudden moved that the committee be increased in membership to eight. As the success of the convention will depend on the decisions of this committee, he considered that it would be better to have more members on it. This was agreed to, and the Chair appointed Drs. Abbott, Adami, Cheesman, Fuller, Sedgwick, Smart, Smith and, at the request of the convention, Welch, the committee to report to the Water Committee of the American Public Health Association, which will endeavor to secure the publication of the proceedings of the convention and of the future report of its committee by the Association.

After some discussion on the advisability of forming an Association of Bacteriologists to insure a recurrence of meetings like the present, Dr. Welch stated that he considered the meeting a success. The interest shown in it by the large attendance and the presence of so many members from a distance have been most encouraging and clearly point to the formation of some society in the future which will bring together the men of mind and ability and which will be the means of continuing this work. He offered a vote of thanks to Drs. Smart, Adami, Fuller and Johnston, who were responsible for the inception of the meeting. Dr. Prudden, on behalf of the convention, expressed indebtedness to the chairman for his skill and kindliness in conducting the meeting. Dr. Smart, on behalf of the Water Committee of the American Public Health Association, rendered acknowledgments to the Academy of Medicine for the pleasant quarters afforded the convention, to Dr. Cheesman, of the College of Physicians and Surgeons, and Dr. Ferguson, of the New York Hospital, for having acted as a local committee of arrangements and made things easy for the management; to Dr. Welch for the able manner in which he had conducted the special work of the convention; and lastly, to the members for their earnestness and interest in the business of the meeting.

The convention adjourned *sine die*.

SELECTIONS.

Carcinoma of the Uterus.—(*Charité Annalen*) 557 cases were treated at the Charité from 1883 to 1893. The majority were from the fourth and fifth decades of life (30.5 and 39.3 per cent.,) while Winckel finds the larger number between the ages of 50 to 55 years (22.3 per cent); the statistics of the Charité divide the most in about equal proportion between the three periods of five years from 35 to 50, and also transfer them from the climacteric back into the period of maturity. As an explanation of this, it is noted that the cases are derived from the poorest classes of the population. Total extirpation in 89 cases 15.4 per cent., and 48 in women under 41 years, 54 were still menstruating, 21 in the beginning of the climacteric 10 in menopause which on the average began at 47.9 years. Of 528 cases furnishing trustworthy information 28 had never borne children; of the remaining 500, 106 (21.2 per cent.) had borne 1 child, 227 (45.4 per cent.) 2 to 5 children, 167 (33.4 per cent. 6 to 16 children; while among Winckel's 130 cases of carcinoma, only 10 per cent. had borne 1 child, 40.8 per cent. 2 to 5 children, and 49.2 per cent. 6 to 16 children. In 46 cases the disease started just after a delivery, or during pregnancy, and in 12 of these the disease was more or less directly the cause of abortion, while all took a rapid course, and 10 were inoperable.—*Centralblatt für Gynäkologie*, No. VI, Feb. 9, 1895.

A Case of Gunshot Wound by the New Swiss Ordnance.—Fr. Brunner (*Korrespondenz-blatt für schweizer Arzte*, 1894, No. VII,) reports a case of gunshot wound by the new small caliber weapon, model of 1889; distance 20 m. The shot first penetrated and tore in pieces the cover fitting firmly over the barrel. It then pierced the front of the coat, vest and shirt, making a round hole through these pieces of clothing, as if by a punch, penetrated the body 3 cm. below the left clavicle in Mohrenheim's (infra clavicular) fossa, left the body below the spine of the scapula and produced three radiating rents in the clothing on the back. Wound of entrance circular as if struck with a punch of the diameter of the missile. Wound of exit circular with sharp edges, 10 mm. in diameter, surrounded with a livid, swollen area. Lung uninjured. The course grazing the tip of the coracoid process, passed close over the collection of nerves and vessels into the scapula, which was pierced 2½ cm. below the spine. Wound healed kindly, although not aseptic. No subsequent hemorrhage. This case shows typically the result of small caliber shot. Although the projectile in boring through the gun-cover certainly lost considerable in energy, it was able to penetrate the body in a confined course without causing further harm by the way, without injuring nerves and large vessels though in close proximity and without splintering the scapula.—*Centralblatt für Chirurgie*, No. III, Jan. 19, 1895.

Pathologico-anatomic Researches on the Method of Extension of Cancer of the Uterus.—(Seelig, Inaug. Diss., Strassburg, July, 1894). This work contains painstaking macroscopic and microscopic investigations. The conclusion of most practical importance is, that one must no longer be satisfied with supra-vaginal amputation, but he must always perform total extirpation if the disease has only started in the cervix, for even at that time the body of the uterus may be affected. The writer distinguishes carcinoma of the cervix and of the body; carcinoma of the cervix extends by the lymph channels, by preference those accompanying the blood vessels, and in those situated in the outer muscular layer and on the boundary of the peripheral and middle layers. There is a connection between the lymphatics of the cervix and the body, which lies within the wall of the organ and is represented by the lymph channels accompanying the large blood vessels of the middle and external muscular layer. These channels have a relatively large caliber. In the body of the uterus the lymphatics of the inner and of the larger part of the middle layer are very small, those of the outer of larger caliber. Carcinoma of the cervix does not remain limited to the lower portion of the uterus. It passes the internal os, not usually in the mucous membrane, but in the external muscular layer. Therefore it is hardly tenable strictly to retain the term, carcinoma of the cervix. 2. carcinoma of the body grows relatively slowly, and is marked by a centrifugal increase. Participation of the lymph vessels is first evident between the middle and outer

muscular layers. The cervix is affected only after a longer existence of the disease in the body. Its wall is destroyed from within out; the outer layer remains long intact, also the vaginal mucosa.—*Centralblatt für Gynäkologie*, No. VI, Feb. 9, 1895.

Pathology of Rickets.—(Jahrbuch für Kinderheilkunde Bd. XXXVII, Hft. 2). The writer assumes with Kassowitz that even the slightest elasticity or yielding of the bones of the skull or along the sutures is to be regarded as the surest and most undoubted sign of an active rachitis. His observations on 338 healthy children during the first two years of life show:

1. The average size of the anterior fontanelle during the first three months is 2.71 qcm. (42 sq. in.) and it decreases constantly in the succeeding months. The rate of diminution becomes much faster in the second year.

2. The largest anterior fontanelles, met with in children without rachitic changes in the skeleton during the first year, measured 3qcm. (.465 sq. in.) This was rarely found. Quite probably such cases are to be looked upon as the starting point of rachitic affections. At least, fontanelles of this dimension are found far more frequently in connection with evidences of craniotabes the rickety rosary, etc., than under normal conditions.

3. The complete closure of the fontanelles rarely occurs before the tenth to the twelfth month, and usually in normal children in the course of the second year, though it was found in 20 per cent. in the thirteenth to fifteenth month and in 75 per cent. in the nineteenth to twenty-first. The variations in the size of the anterior fontanelles, in perfectly normal children of the same age, are in the opinion of the writer, merely natural differences in the growth of the skull. Fontanelle measurements in 786 rachitic children showed: 1, the anterior fontanelle was decidedly larger than in normal children (up to 14.8 qcm. 2.294 sq. in.); 2, it does not diminish constantly from birth, but increases gradually up to the ninth month, becomes smaller in the three succeeding months, yet does not reach its original size, and only after the beginning of the second year is a constant diminution to be observed. Yet even in the second and third years anterior fontanelles are found, measuring 25 qcm. (3.875 sq. in.); 3, the closure of the anterior fontanelle is delayed until well into the third year. All details may be obtained from the original.—*Centralblatt für Gynäkologie*, No. 6, Feb. 9, 1895.

NECROLOGY.

ALBERT C. GORGAS, M.D., Medical Director of the United States Navy, died of heart disease at his home in Germantown, a suburb of Philadelphia, June 29. He was a native of Philadelphia and was graduated from the Jefferson Medical College in March, 1856. He entered the United States service, August 30 of the same year, as Assistant Surgeon, being assigned to the sloop-of-war *Germantown*. He served on the East India Station, from 1857 to 1860, and was then transferred to the receiving ship *North Carolina*, at New York. In 1861 he was commissioned Surgeon and was attached to the *Vandalia* of the South Atlantic squadron until 1863. After serving a year at the Norfolk Naval Hospital, in 1864, he joined the *Juniata* of the South Atlantic blockading fleet. He was present at the bombardment and taking of Fort Pulaski and the assault on Fort Fisher. In 1867, Dr. Gorgas sailed on the *Brooklyn* as Fleet Surgeon of the Brazil squadron. Shortly afterward, he was assigned to the Portsmouth Navy Yard. From 1870 to 1873, he was stationed on the *Wabash*, as Fleet Surgeon to the European squadron. He was on duty at the Naval Hospital, Annapolis from 1873 to 1877 and went to sea for the last cruise in 1879, as Fleet Surgeon of the South Atlantic squadron on the flag-ship *Hartford*. He was stationed at the Naval Academy in 1880; at the Chelsea Naval Hospital, 1882 to 1885; President of the Examining Board, 1885 to 1889; Naval Hospital, Philadelphia, 1889 to 1893; National Museum of Hygiene, Washington, from 1893 until recently. He was commissioned Medical Inspector Oct. 6, 1873, and Medical Director March 4, 1884. He leaves a wife, a daughter and two sons, the latter being Miles Gorgas, who holds a prominent position in the United States Navy, and the Rev. Henry Gorgas, who is assistant rector at a New York Protestant Episcopal church.

JOSHUA GREEN WILBUR, M.D., of Brooklyn, died at his summer home in Montclair, N. J., on June 25. He was born in Massachusetts on Sept. 25, 1825, the son of Hervey B. and Anne Tappan Wilbur. Two of his brothers, as well as himself, followed the profession of medicine. His eldest brother the late Dr. Hervey Wilbur of Syracuse, was the first man to adopt a practical system of education for the feeble-minded children and for years had charge of the State asylum for those unfortunates. Another brother, Dr. Charles T. Wilbur, devoted years of study to the same affliction and is now superintendent of the Michigan State Asylum for the feeble-minded at Kalamazoo. He was graduated from the Harvard Medical College in 1862. Soon after the breaking out of the war he went to the front as a surgeon with a Massachusetts regiment. Throughout the struggle Dr. Wilbur attended to the wounded on the fields and in the Union hospitals. At the close of hostilities he settled in Brooklyn and engaged in general practice for about five years. Then he decided to make a specialty of life insurance examinations. For about twenty-five years he was engaged, chiefly in New York City, as the medical examiner for such companies as the Mutual Benefit, Washington Life, Berkshire Life, New England, Ætna, Mercantile Benefit and Penn Mutual Life Insurance companies and medical director of the New York Jewelers' league. He was reputed to have examined more applicants for life insurance policies than any other physician in America and, perhaps, in the world. The cause of his death was paralysis, from which he had been failing for about three months.

EDWARD SPALDING, M.D., of Nashua, N. H., who died June 24, in his eighty-first year, was better known as a capitalist and cotton-spinner than as a medical man. He was, however, a graduate of the Harvard Medical School in 1837. He was a graduate in arts at Dartmouth College and afterward for a time one of the board of trustees.

GEORGE TAYLOR ROBINSON, M.D., of Camden, N. J., died June 28. He was a graduate of the University of Pennsylvania in the class of 1882 and a member of the staff of the Cooper Hospital of Camden, and is reported to have given special attention to the application of the spectroscope to clinical medicine.

ALEXANDER I. ARONSON, M.D., of New York City, died suddenly June 25, from apoplexy. He was a native of Germany, and a graduate from the University of Jena in 1879. About a year later he settled in New York and soon became known as one of the most popular physicians of the East Side. He leaves a widow and three children. He was a member of the German Medical Society of that city.

GEORGE GARMANY LARCOMBE, M.D., died June 28, at Savannah, Ga., aged 34 years. He graduated from Princeton College in 1882, and from Bellevue Hospital Medical College three years later. He was ambulance surgeon at Bellevue Hospital in 1885 and on the surgical interne staff, Third Surgical Division, in 1887. He thence went to the University of Vienna, but in 1888 enrolled himself at the King's College School in London and in the same year took the degree of M.R.C.S.E. When he returned to this country he took up his residence at Savannah, engaging in general practice.

E. R. PALMER, M.D., of Louisville, July 6, aged 53.

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SATURDAY, JULY 13, 1895.

THE SURGERY OF PIERRE FRANCO.

The learned NICAISE, who through the press of FELIX ALCAN enriched modern surgical literature by translating the great surgery of GUY DE CHAULIAC, and the surgery of HENRI DE MONDEVILLE, has recently brought out the surgery of PIERRE FRANCO. Thanks to NICAISE, we can now view French surgery continuously from DE MONDEVILLE down to modern times. It is true DE MONDEVILLE and DE CHAULIAC were under the impress of THEODORIC and the Arabian school, but in many directions they were original, and without doubt these were the real founders of the French didactic school, and with the later labors of FRANCO and PARÉ its distinctive character was completed. That PARÉ distanced FRANCO in the race for recognition by immediate posterity was due quite as much to the political changes of the time, and accidental circumstances, as to any intellectual supremacy.

The intolerance of the period of FRANCO is well illustrated by the story told by NICAISE of BRISSOT, a young doctor of the Paris faculty who, in 1514, proposed to practice bleeding on the same side in which the pain was located, and cited GALEN as his authority. Although BRISSOT was sustained by the Paris School, his doctrine was struck by the anathema of the School of Salamanca, which decided that it would not permit a patient to be bled for a pleurisy on the side in which the pain existed. The practice was denounced as impious, and its adherents were branded as the "Lutherans of Medicine." CHARLES THE FIFTH issued a decree which defended the old-fashioned bleeders—that is to say, those who bled on the opposite side of the disease. "Nevertheless," says NICAISE, "GALEN triumphed, but in the end bleeding was practiced indifferently on one or the other side." FRANCO adopted the doctrine of BRISSOT and always counseled that the operation be performed on the side of the disease.

FRANCO used the incandescent knife in amputations, but like all those of his time ignored the dictum of DE MONDEVILLE that "suppuration of wounds was a pathological accident and not a necessary condition." FRANCO was born at Turriers in Provence about the year 1500 and died about the year 1561. His operations on hernia, and on stone in the bladder were his most distinctive ones.

THE DEATH OF HUXLEY.

THOMAS HENRY HUXLEY, the eminent English naturalist, died June 29, aged 70 years. He was in his twenty-first year when he took his M. B. degree at the University of London, after having studied three years at the Charing Cross Hospital Medical School; he took second honor in anatomy and physiology. In 1846 he joined the medical branch of the Royal Navy, serving first at the Haslar Hospital, and afterward as assistant surgeon on H. M. S., *Rattlesnake*, during its four years' voyage to the South Pacific. In 1853 he resigned from the Navy, to become the professor of natural history in the Royal School of Mines. From that point in his life, when not quite 30 years of age, his course as a scientific investigator and teacher, especially in the field of zoölogy, became fixed.

The papers that he wrote from the *Rattlesnake*, embodying the results of his studies, remained unpublished for some time, because the Admiralty refused to contribute anything toward the expense, and his pay as assistant surgeon was but seven-and-sixpence a day. So it was not until 1859 that the essays saw print. They were published then by the Royal Society.

After the first struggle, HUXLEY's rise to eminence was steady and rapid, until he became one of the foremost scientific men of the century. He had returned to England in 1850. In the following year he was made a Fellow of the Royal Society, and the next year he received one of the two medals that the society awards annually.

HUXLEY and TYNDALL, before they became famous, applied for the chairs of natural history and natural philosophy in an American university, where they hoped to work together, but other men, supposed to promise better work, were chosen.

As an estimate of the status of PROFESSOR HUXLEY in the scientific world, the following editorial from one of our daily cotemporaries may be set down as just and fair:

"By the death of PROFESSOR HUXLEY at Eastbourne England has lost one of her greatest scientific inquirers. HUXLEY's name will stand with those of TYN-

DALL, DARWIN and SPENCER at the head of English science of our generation. His views on the relation of science to religion and his attacks on revealed religion caused endless controversy, which has been oftentimes renewed during the publication of his collected works. But his true fame was based on his work as a scientist, pure and simple, and as such he will be honored in the annals of scientific research and literature."

"MEDICINE AND CRICKET."

A medical man in England has achieved fame by his mastery of the national game of cricket and the London *Daily Telegraph* recently started a shilling subscription to provide "a great national testimonial" to his success. Among the subscribers we find the following in a recent issue of the *British Medical Journal:*

Mr. Ernest Hart	100	shillings
Dr. Bridgewater	20	"
Dr. Isambard Owen	20	"
Dr. Dawson Williams	20	"
Mr. Francis Fowke	20	"
Mr. Burr	20	"
Sir T. Spencer Wells	20	"
Dr. R. Temple Wright	5	"
W. E. Soffe	5	"
Mr. H. Langley Brown	21	"
Dr. R. Shingleton Smith	21	"
"Nemo"	10	"
Compositors of the *British Med. Journal,*	14	"
Clerks at the *British Med. Jour.* office	10	"

Our valued contemporary, the *Medical News*, makes this GRACE testimonial fund the occasion for a timely and telling exposition of "Professional Indifference to Professional Enemies" in this country, and compares the subscriptions to the cricketer in England, with those received to pay the expenses and to publish the report of a trial—"the economic, social and professional importance of which is simply incalculable." "Besides the illustration cited," says our contemporary, "none could be more striking than the present professional disregard of the splendid work so modestly, bravely and effectively carried to a successful issue by DR. JAMES E. REEVES in his fight with the Amick Company. A large number of State and national societies have met since DR. REEVES' noteworthy victory, and not one of them by any public action has so much as alluded to it. As we write the advance sheets of the report of the trial are before us. We have read them with delight, and wish once again to arouse in the minds of the medical men of the United States a sense of their obligation to the good men engaged in this trial—the defendant, the attorney, the judge and the jury. It even yet seems marvelous, in our quack-ridden land, that such a result should have been brought about. Every physician should read the interesting story as related in the report, in the satirical letter of DR. REEVES, the charge of the judge, the arguments and declarations and, especially, in the specious logic of the plaintiffs' attorney, so redolent of popular error and demagogism. We regret that we can not republish the entire pamphlet in the *Medical News*, but we regret far more the inertia of professional sentiment that is shown in the subscription of but fourteen men, amounting in all to the magnificent sum of $141."

Following is the list of the fourteen subscribers, which we produce to contrast with the similar list above given:

Dr. George M. Gould	$10.00
Dr. D. L. Page	1.00
Dr. N. P. Dandridge	10.00
Dr. P. S. Conner	10.00
Dr. F. Forchheimer	15.00
Dr. John A. Murphy	5.00
Dr. A. B. Richardson	5.00
Dr. J. F. Baldwin	5.00
Dr. J. H. Kellogg	5.00
Dr. A. Vander Veer	35.00
Messrs. William Wood & Co	25.00
Drs. Davis & Davis	5.00
Dr. John B. Hamilton	5.00
Dr. R. J. Trippe	5.00

The total thus subscribed for the REEVES fund is, as already stated, $141; that for the English cricket-player is nearly $10,000. The JOURNAL heartily indorses the sentiments of the *Medical News*, and urges every member of the AMERICAN MEDICAL ASSOCIATION to send his subscription of at least 50 cents to DR. REEVES for a copy of this report.

In relation to the Amick "Cure" it is interesting to note that MR. S. G. SEA, whose certificate of having been cured of consumption by this nostrum and who was at one time business manager, or advertising manager, or something which placed him in official relations with the Amick Company, recently died of consumption, from which he had suffered for several years. His was a case of fibroid phthisis, with the usual history of improvement and relapses running through five or six years, and several times during that period, before he fell in with this concern, he supposed himself cured of the disease. Indeed, at the time he began to take their treatment he asserted that he felt well, but the physical signs caused his physicians in Chicago to recommend him to change climate. A short time after this recommendation, his circular letter claiming to be cured began to be sent broadcast over the country.

MICRO-ORGANISMS IN THE HEALTHY NOSE.

Among the interesting facts we owe to bacteriology is the discovery that so-called healthy persons are the lodging places of myriads of bacteria, powdering their skins, dwelling in the cavities and orifices of the body, mouth, nose, throat, intestines, etc. Taking the nose, we should expect to find a large number of microörganisms in its cavities, both from its anatomic construction and its function. It is calculated that 500 litres of air, bearing on a low average 1,500 bacteria, are inspired every hour.[1] These microbes of the healthy nose have been investigated by HAJEK,

[1] Lancet, June 1, 1895.

LÖWENBERG, FRANKEL, VON BESSER, PAULSEN, ST. CLAIR, THOMSON and HEWLETT, among others.

A great diversity of opinions are arrived at by these observers; the first two, as also THOMSON and HEWLETT, found a scarcity of bacteria in the nose, while the others all found a greater or lesser number. Some found a number of pathogenic organisms such as the erysipelas coccus—one in every five healthy individuals) and FRANKEL's coccus—one in every four cases. WEIBEL has cultivated a comma bacillus from the nose. WELCH[2] points out that capsulated bacilli are among the interesting features of nasal bacteriology. The ozena bacillus of ABEL closely resembles FRIEDLANDER's bacillus, but it is not certain yet whether it is found in the healthy nose. PAULSEN made sixty-four cultures from the noses of twenty-seven healthy persons; eleven of these were sterile, the rest, fifty-three, furnished colonies; cocci were more frequent than bacilli; pathogenic bacteria were only observed in one normal case, and in this the streptococcus pyogenes was found.

A recent paper by THOMSON and HEWLETT[3] seems to account for these diverse results. These authors examined thirteen healthy cases and examined the vestibule of the nose and the mucous membrane separately. From the former, twenty-seven cultures and thirty-four cover-glass preparations, and from the mucous membrane seventy-six cultures and thirty-four cover-glass preparations, were made. No attempt was made to differentiate the organisms; it was only sought to determine the presence or absence of bacteria. The authors arrive at the following conclusions: 1, the vestibule is lined with skin furnished with hairs and with sudoriferous and sebaceous glands, and is not part of the nose cavity proper—only leading to it; hence, in bacteriologic examinations of the nasal fossæ a distinction must be made between the vestibule and the mucous cavity proper; 2, contamination from the lining of the vestibule is difficult to avoid, even when this source of error is realized; 3, in the dust and crusts of mucus among the vibrissæ of healthy subjects microörganisms are never absent—as a rule they are abundant; 4, on the Schneiderian membrane the reverse is the case, since in over 80 per cent. of the cases no organisms whatever were found and the mucus was completely sterile; 5, the occurrence of pathogenic organisms on the Schneiderian membrane is quite exceptional.

While the number of individual cases in these researches is hardly large enough to be conclusive, still, if they are corroborated, it would seem that nearly all the microbes of inspired air are arrested either by the moist surface and the vibrissæ of the vestibule, or that, as has been already claimed by WURTZ and LERMOYEZ, the nasal mucus is germicidal.

[2] Dennis' System of Surgery, I, 262.
[3] Lancet, June 1, 1895.

THE PHYSIOLOGY OF SLEEP.

The suggestions from the later discoveries in the minute anatomy of the nervous system seem inexhaustible. Not only has the conception of the neuron modified all our ideas of nervous physiology and pathology, but we now have the protoplasmic neuroglia extensions also bearing a part in the newer theories of the mechanism of the nerve centers. Not long since, M. DUVAL offered a theory of sleep, according to which the nerve cells drew in their processes during slumber, as some flowers do their petals, basing himself in this, on the observation of certain lower organisms, in which he thought he had discovered amœboid movements of the nerve cells. His priority in this theory has been contested by LEPINE (of Lyons) but inasmuch as no one has yet seen these amœboid movements in the nerve cells of higher animals, it can only pass as an ingenious hypothesis.

At a recent meeting, however, of the Anthropological Society of Paris, M. AZANLAY called attention to some suggestions in this direction by RAMON Y CAJAL, one of the investigators to whom we owe the most in the striking discoveries in neural anatomy. He remarks that no matter how we kill an animal, whether by shock, strangulation, or anesthesia, we never find evidence of any amœboid movements of the prolongations of the nerve cells. His attention, however, was attracted by the phenomena presented by the neuroglia cells under the same conditions. These have numerous prolongations, some of them have very fine hairlike ones, and his theory is that these, endowed with amœboid movements, contract in the waking state, and extend themselves during sleep. In the former condition they permit the prolongations of the nerve cells proper, to come in contact with the end brushes of the neuron and to thus permit the conduction of the nervous influence. In the extended state, on the other hand, they isolate the nerve cells and thus interfere with conduction.

Around the capillaries and vessels we find a great number of these cells, and when they contract the vessels are enabled to dilate, the blood circulates freely and the nerve cells are excited to activity. In this way we can explain the effects of attention or concentration of the mind on a subject, as well as account for the phenomena of sleep.

As M. AZANLAY says, this theory, however much it may seem probable or take the fancy, is only as yet an undemonstrated hypothesis. The physiology of sleep is a very complicated subject, and any theory that has yet been advanced is open to many objections, some of them hard to meet. The same is true even to a still greater extent as regards the phenomena of attention and mental activity, and every attempt at explanation only opens up new questions that still remain for solution. This theory of RAMON

Y CAJAL has the advantage of appearing an almost ultimate mechanical explanation, which would still remain to be given with any chemical or other theory, and it has also the prestige of having been offered by one who is, as yet, one of the most successful investigators and discoverers in the finer anatomy of the nervous system.

GLADSTONE'S VIEWS REGARDING MEDICINE.

The great ex-Premier of Great Britain has frequently expressed his high appreciation of medical men and their honorable walk in life, but he has seldom said anything more memorable than in the sentiments given below. The article from which we quote, purports to be a sketch of a great physician—the late SIR ANDREW CLARK—who was for nearly a quarter-century the family physician of the author. It is such a loving tribute as the worthy statesman is well capable of making, but it is something more and higher. It is a philosophical statement of the social rise and progress of medicine. The antiquity of the profession is admitted and it is placed farther back in the vistas of time than our own writers commonly aver, and the progressive exaltation of medicine among the avocations of life is both outlined as to the past and predicted for the future. Is it true—can it be true—that medicine is destined to outstrip in the social race those haughty competitors, law and theology? It may be, and if GLADSTONE'S philosophical insight is correct this will be its future position—the peer if not the superior of the other two.

The concluding paragraphs of MR. GLADSTONE'S sketch, which we quote from the *Youth's Companion*, June 27, are as follow:

"It was a common but it is probably now a vanishing practice, to speak of medicine, the law, and the church, meaning the sacred ministry, as the three learned professions. The three are probably of equal antiquity, but not of equal antiquity with anything like equal eminence. The primitive physician probably survives in the herbalist. He pursued his profession, as it were, underground, while the priest and the judge were originally to be found in the sovereign, or a little later perhaps in prominent and weighty members of society.

"Though there are isolated names of distinction associated with medicine, the doctor as such was the object of ridicule as well as, perhaps not less than, of confidence.

"It is needless to say that the state of things which made ridicule possible has passed away as completely as have the ecclesiastical conditions described in the opening verses of Hudibras, and the period

'When pulpit, drum ecclesiastick
Was beat with fist, instead of a stick.'

"The physician has still this note separate from those of the lawyer and the clergyman. They are, at least in the country where I write, both of them largely endowed by the nation; whereas the physician or surgeon *receives little public money*, and that by the piece, or with a strict reference to work done; a circumstance which has not prevented a rise in their professional emoluments and in connection with all but the poorer classes of society, within the last hundred years or little more, greater, I apprehend, than has accrued in either of the other cases.

"It is not, however, emolument, but something higher and subtler by far, that I have now in view, namely, *influence*. The immense advance of knowledge and care in the training of medical men has of itself operated largely in opening to them the interior of families, and an access to personal confidences. But also time has been upon their side. When gold was first discovered, says HORACE,

'*macies et nova febrium,*
Terris incubuit cohors.'

"In this simple utterance there is a broad and comprehensive meaning. The increase of wealth signifies the multiplication of enjoyments without any corresponding advance in conscientious motive, or in prudential restraint.

"Other causes coöperate with those I have already named—such as the change in communication between man and man, from slow to rapid, and from rapid in many cases to instantaneous. All I have said seems to imply new sensitiveness and complex developments of the nervous system, answering to a condition in which we live so fast, and even while making life more and more luxurious, we abridge the first and most innocent of all luxuries, and deny nature her repose.

"The physician had always to use his eyes; and now he has to use them more largely, more sharply than ever. But in our day he has, and in the coming day yet more will he have, to use also his ears. He becomes, and he must become increasingly, the recipient of the confidences of the family and the individual. He has *a kind of priesthood* to exercise as he grows in acquaintance with the secrets of the heart.

"He must, whether he will or not, in the higher circles of his profession, find himself invested with a sacred guardianship of purity and integrity for the soul, as well as with purveyance of health for the body, as the connection and interaction of the two come to be more intricate. If he declines this guardianship, the alternative is that he will aid relaxation, and will abet corruption."

GEORGETOWN MEDICAL COLLEGE, WASHINGTON, D. C.

It is with pleasure we note that this college has had the courage to break away from the custom which has heretofore prevailed at the National Capital, of having night sessions. The Georgetown Medical College will hereafter be a day school, and there can be no question but the change will not only meet with the approbation of the clientelage of the school, but the friends of higher medical education everywhere, who have always noticed with regret that the medical colleges in the capital of our country were simply night schools, for the most part dependent upon Department clerks, necessarily otherwise engaged during office hours. That many good men have been graduated at these schools everybody knows, but their success has been achieved in spite of the handicap.

CORRESPONDENCE.

Prophylaxis of Paludism.

NEW CASTLE, COLO., July 1, 1895.

To the Editor:—Under this caption, in the last number of the JOURNAL, is a quotation from Noel: Any prophylaxis with the oft applied agent, quinin, belongs rather to the field of practical medicine than hygiene. Those who adopt the old-time theory of malaria-swamp poison, or the more recent one of micrococci-malaria, until they have arrested the beneficent action of the sun rays that carry the waters of the ocean to the "dry and thirsty land," or destroyed the microscopic entities that abound in all paludal regions will probably find in medication with anti-periodics their chief prophylaxis.

Wherever evaporation is abundant there will be hot days and cool nights, with the enervating and chilling influences of dampness. During the chill of night there will be contraction of the capillaries of the peripheral and consequent hyperemia, with engorgement and congestion of central or-

gans, followed, soon or late, by more or less pronounced chill, febrile reaction and diaphoresis, the physiologic and pathologic expressions of thermometric and hygrometric environment. A simple and rational prophylaxis will readily suggest itself to those who are not wedded to the old ruts, and who do not go "round Robin Hood's barn," to find causation. If, instead of wooing the cool and chilling air of night in the garb of fashion, or going to sleep in the damp clothes worn during the day, and half covered, those living in such localities would pay due regard to ordinary hygienic laws, and take a friction bath, damp or dry, as night approaches, put on dry warm clothing, and sleep between flannel blankets, they may laugh to scorn both the marsh poison and pathogenic germs of even the lagoons of Hindostan, or the swamps of Louisiana.

W. L. SCHENCK, M.D.

"Audi Tertiam Partem."

SAN FRANCISCO, CAL., July 4, 1895.

To the Editor:—In the June 29 issue of the JOURNAL, on page 1021, under the head of "A Question of Translation," Dr. G. A. Aschman, of Wheeling, W. Va., takes the liberty to so construe the latter part of my communication of June 15, (appearing under the heading of "*Audi Alteram Partem*,") as to make it appear that I have been guilty of incorrectly translating the German term "entgiften" which is the opposite of the German term "vergiften"—to poison—and which has no equivalent in the English language—except "disempoison" perhaps.

The Doctor, after pretending to be familiar with the expressions of Binz—and after stating that I have no reason to take issue with Binz on his doctrine, sums up his article by stating that it is sometimes dangerous to make a translation when not perfectly familiar with the respective languages. In this I fully agree with the Doctor, and he will, no doubt, agree with me after reading this article, that it is still more dangerous to criticize that which one does not fully understand.

When I penned the words, "to poison the organism as it were," I knew full well that unless the readers thereof were familiar with the subject upon which Binz expressed himself, they would construe these words in a translatory sense, when, in fact they were penned in a definitory sense—as will be seen hereafter.

That slight incidents will furnish the key to great truths is fully illustrated in the present case—as the incidental error on my part in substituting "Buda-Pesth" for "Weisbaden," the place where Binz expressed himself, as quoted by me, goes to show that Dr. Aschman was not familiar with the expressions of Binz until I caused them to appear in print on June 15, as he would hardly have overlooked this error on my part, hence I am not surprised that the Doctor failed in comprehending the sense in which I penned the words, "to poison the organism as it were."

As "sero-therapy" is the outgrowth of just such expressions as those made by Binz at Weisbaden in 1883, and as the adoption or rejection of said therapeutic method in this country must depend upon a full understanding of the cardinal principles underlying it—I will take this opportunity to expose these principles more fully, for the benefit of those who are not familiar with the German language.

The subject upon which Binz expressed himself at Weisbaden was "Antagonism between Microbes and Toxins." He expressed himself in a bacteriologic sense—on the assumption that infectious diseases are due to specific microbes and their toxins, capable of antagonizing or chemically neutralizing one another in the blood—when he said: "Our *future* therapeutic efforts in infectious diseases must be toward '*den lebenden organismus zu entgiften*,' in contra-distinction to our *past* therapeutic efforts which have been toward '*den lebenden organismus zu entgiften*,' by eliminating the contagium at the bedside by such physiologic processes as emesis, catharsis, diaphoresis, diuresis," etc.

That a therapeutic method having for its object chemic neutralization of one toxin by another, or destruction of one microbe by another in the blood—phagocytosis as it were—differs radically from a therapeutic method having for its object physiologic elimination of the contagium, can hardly be gainsaid, hence I have good reason to be at issue with Binz, Dr. Aschman's opinion to the contrary notwithstanding. And inasmuch as I have shown that there exist no reliable scientific data that would justify us in assuming (see my papers, the "Status Presens of Antitoxic Blood Serum," and the "Status Presens of Inherited Tuberculosis," read before the State Medical Society of California, April 16, 1895) that infectious diseases are caused by specific microorganisms or their toxins, the majority of the American medical profession will no doubt agree with me that I made no "serious mistake" when I *defined* the "serum method," based upon the expressions of Binz and others, "to poison the organism as it were," especially so, when I have shown by reliable scientific data that the serum causes chemic decomposition of the blood and has increased the mortality from diphtheria in Berlin over 25 per cent.

Concluding, I will say, that while I would regard chemic neutralization of the etiologic factor concerning infectious diseases as the "ideal" therapeutic method in such diseases, still, until such results shall be demonstrated beyond a reasonable doubt, I, and I believe the majority of the profession in this country, will continue in the future, as they have done in the past, to eliminate the poison, "*ad via naturam*," physiologically as it were.

Respectfully submitted,

CHAS. G. KUHLMAN, M.D.

Dr. Robert L. Annan.

To the Editor:—In your issue of June 8, on page 909, under the caption, "An Example to be Followed" it is stated that "Dr. Andrew Auvan of Emmitsburg, Md., who was 90 years old on April 27, has contributed $50 to the Rush Monument Fund."

In a communication written immediately on reading this paragraph, but which has evidently failed to reach you, I begged you to state that the worthy physician whose example I hoped would be followed was Dr. Andrew Annan, of Emmitsburg, Md., whose father, Dr. Robert Landales Annan, was a student of Dr. Rush, and whose certificate of qualification for the practice of medicine, bearing this great man's signature, is now in the possession of the latter's grandson, Dr. Robert L. Annan, of Emmitsburg.

In asking you to make this correction, I beg also to remind the members of the ASSOCIATION that at its last meeting it was made their individual duty "to collect funds for the Rush Monument from their fellow-practitioners and transfer the amounts to the Treasurer of the Committee on Rush Monument at *as early a day as possible*"—and I hope that every delegate and member present at that meeting will promptly follow the example which our esteemed and venerable colleague, Dr. Annan, has set, by transmitting the funds he may collect to George H. Rohé, M.D., Secretary, Catonsville, Md. Very respectfully,

ALBERT L. GIHON, M.D.,
Chairman Rush Monument Committee.

Woman's Medical College of Pennsylvania.

PHILADELPHIA, PA., July 6, 1895.

To the Editor:—In a recent issue, you reprint the greater part of an editorial appearing in the *Medical Press and Circular*, concerning the status of American diplomates and, while noting some errors, fail to point out that the "Female Medical College" to which allusion is made in the editorial, is a non-existent institution and has been so for over twenty-five years. The unfavorable light in which the college is placed, may be easily transferred by some persons to the only institution existing in Philadelphia for the instruction of women in medicine, namely, the Woman's Medical College of Pennsylvania. This institution is a member of the Association of American Medical Colleges, has been represented at all its recent meetings and conforms to its requirements. I presume it is hardly necessary to state that the college is in good standing in the medical profession of the United States. Yours,

HENRY LEFFMANN.

Illinois State Board of Health.

To the Editor:—Enclosed please find copy of a set of resolutions unanimously adopted by the Illinois State Board of Health, at its recent meeting held in Chicago June 25, 1895. Will you kindly give the same publication in the next issue of your JOURNAL? and greatly oblige,

J. W. SCOTT, M.D., Sec'y.

WHEREAS, The Faculty of the Northwestern University

Woman's Medical College adopted a set of resolutions, criticising the Illinois State Board of Health for having issued to three non-graduate students of said College, the State certificate entitling them to practice medicine, whom they claim were not entitled to receive them, and charging the Board with having adopted a lax policy in numerous other instances, thereby seriously detracting from the usefulness of the Board; and

WHEREAS, Although the resolutions were "ordered to be placed before the Illinois State Board of Health," they were furnished to the various medical publications of the country simultaneously with their presentation to the Board, and before the Board had opportunity to make any defense; and

WHEREAS, The said College has not made any investigation of the methods or policy of the Board, and could not be in possession of information upon which to found such serious charges; and

WHEREAS, The Secretary of the Faculty admitted to the Secretary of the Board that the resolutions were adopted without due consideration, and were not so applicable to the present Board; and

WHEREAS, In the past two years no certificate has been granted to any applicant upon an average rating of less than 80 per cent. on all branches, and the questions and examination papers, and a tabulated record of all examinations are preserved, and are matters of record in the office; and

WHEREAS, It is not in the province of the Board to adopt any policy regarding the admission to its examinations of non-graduates, the law prescribing that "non-graduates shall submit themselves for examinations," and further prescribing that "the examinations shall be of an elementary and practical character;" therefore, be it

Resolved, That justice demands that the Faculty of the Northwestern University Woman's Medical College, and all others interested, inform themselves as to the methods and policy of the Illinois State Board of Health in conducting its examinations, with a view to the establishment of the charges made, or of making such withdrawal, alteration or explanation of the charges as the facts may warrant; and further, that the Faculty inquire as to whether any individual interest or personal animosity prompted the drafting and circulating of the resolutions.

(Signed) B. M. GRIFFITH, M.D.,
SARAH HACKETT STEVENSON, M.D.

It was J. Marion Sims.

PHILADELPHIA, July 7, 1895.

To the Editor:—In an article by Dr. R. H. Dalton, published in the JOURNAL, Dec. 23, 1893, I find Dr. Marion Sims called Francis Marion Sims, "named after General Francis Marion of the Revolution." Now in the "Physicians and Surgeons of the United States," page 48, you will find the name is J. Marion Sims, and as the data for this sketch came to me from Dr. Sims and was revised by him, it undoubtedly is correct. This may be a trifle, but for the sake of future history it is better to make the correction.

Yours truly, W. B. ATKINSON, M.D.

PUBLIC HEALTH.

The Proposed Reorganization of the Health Department of Chicago.

The following is self-explanatory:

86 FIFTH AVENUE, CHICAGO, June 26, 1895.

Hon. Geo. B. Swift, Mayor, Chicago.

Dear Sir:—It has been apparent for some time to those familiar with the workings of the Health Department of Chicago, that it needed reorganization. The ordinances on which it is based do not show any harmonious plan but, on the contrary, they are the result of the changes which have taken place in the growth of this city from a village to a metropolis. The time, therefore, seems ripe for the establishment of a Health Department which may not only serve for the purposes of the city of to-day, but one capable of indefinite expansion, according to the future growth and needs of the city, with an increase of subordinate officers from time to time. I have therefore prepared and drafted an ordinance which, in my judgment, meets the necessities of the case, and as it does not increase the general expenditure voted for the Health Department, I sincerely hope you may see your way clear to transmit it to the Council for early passage.

This plan involves future codification of all the laws and ordinances bearing upon the public health and the allotment and definition of the duties of all classes of public employes as related thereto. It provides also for the adoption of such regulations as concern the division of the city into sanitary districts, to be increased from time to time as the growth of the city requires; in other words, it is an elastic plan which will not require changes in the immediate future. I have omitted the compensation to be attached to each office and submit in another inclosure a proposed schedule of the same for the information of the Finance Committee. In the preparation of this schedule, I have been assisted by the Assistant Commissioner, Dr. Frank W. Reilly, who has had access to the records showing amounts at present paid by the department.

I will now take the bill up by sections for the purpose of explanation. Sections 1, 2 and 3 are, in my opinion, necessary to secure the perfect working of the officers and employes of the department. Indeed, it will be found impossible to secure the appointment of proper persons unless the tenure of office be made more secure than has been the case under previous ordinances. Moreover, it is such as to bring the department in line with the civil service laws of the State and of the United States. I had charge of a Bureau of the Treasury Department when the present civil service law was enacted, and I am entirely familiar with its operations. Some passages in this ordinance will be recognized as quoted directly from that law.

Sections 4, 5, 6 and 7, are self-explanatory, and relate to the different classes of officers, and especially to the qualifications and appointments of the Sanitary Director and Assistant Sanitary Director.

Section 8, relating to the City Physician, after giving the qualifications, makes specific mention of his duties. There is some conflict in the present ordinances as to his exact relations with the Health Department, and this section makes it entirely clear.

Section 9, relating to the Commissioner, sets forth his duties, and, as I understand it, is well calculated to carry out your views in regard to placing the business portion of the Health Department under the direction of a skilled business man, and as will be seen, there are duties of this nature quite sufficient to occupy the time of a man of this character.

Section 10, providing for a Sanitary Captain, is self-explanatory. It must be obvious that some one must be had to account for the property owned by the Department, to have charge of the same, and to superintend and to direct the outdoor work. I have nowhere seen in the ordinances or regulations of the Department any provision looking to an accounting for the property, as is provided for in this section, which is not only calculated to protect the interests of the city, but to prevent misuse or misapplication of any property or appliance belonging to the Department.

Sections 11 and 12 relate to the appointment of a City Chemist and a Medical Inspector, which are self-explanatory, except that definite qualifications are, for the first time, provided for. The system of examination of medical inspectors, as preliminary to appointment, as proposed in this ordinance, should by all means be adopted at the earliest possible moment, as the appointment of persons through motives of friendship or political association fails to secure that standard of professional qualifications that a great city should always be able to command.

The Sanitary Corps, provided for by Section 14, simply defines the status of the existing affairs, with this exception that it does not provide that physicians shall be employed as fumigators, who are practically skilled laborers, as there is no need to pay such high prices for work of this character. It appears on investigation that the designations laid down by present ordinances do not by any means define the work actually accomplished by the persons being designated as fumigators, who are employed in the Vaccination Department and elsewhere, and it seems that no particular regard has been paid to ordinances in the matter of nature of employment of persons as designated by the ordinances. These irregularities, perhaps impracticable to be avoided under existing conditions or circumstances, will be done away with if the new ordinance shall be passed.

Section 16 provides for the employment of an interpreter, an office not at present borne on any roll, but which is extremely necessary for the issuance of circulars in the different languages which are necessary in order to reach the polyglot population such as exists in Chicago, and his ser-

vices will be required whenever personal investigations are undertaken in certain districts, not only by the Sanitary Director or by the Medical Inspectors.

The enactment of this ordinance will necessarily require the re-appointment of all officers and employes mentioned in the act, except the City Physician and Commissioner of Health.

Respectfully submitted,

JOHN B. HAMILTON.

AN ORDINANCE TO REORGANIZE THE DEPARTMENT OF HEALTH.

Be it ordained by the City Council of the City of Chicago: There is hereby established in the municipal government of the city of Chicago an executive department to be known as the Department of Health.

Appointments—General Provision.

§ 1.—No person shall be appointed to any office or position in the said Department, until proper inquiry shall be made by examination, or otherwise, into the ability and fitness of such person to perform the duty that may be required of him, should he be appointed.

Removals—General Provision.

§ 2.—No officer or employe of this Department shall be removed except for cause and no person shall be appointed, promoted or removed for any political reason. Any officer or employe may be removed for crime, malfeasance, habitual neglect of duty, willful misconduct, insubordination, disobedience of orders, incompetence, or insanity, and for no other cause.

Officers and Employes shall not accept Gifts or Bribes.

§ 3.—Any officer, inspector or member of the Sanitary or Ambulance Corps who shall accept any gift of money or other valuable thing for reporting or not reporting the existence of any nuisance or case of contagious or infectious disease, shall upon proof thereof be dismissed by the Sanitary Director and shall in addition be subject to such other penalty as the ordinance may prescribe.

Enumeration of Officers and Employes.

§ 4.—The Department of Health shall hereafter consist of the following officers and employes to-wit: a Sanitary Director; an Assistant Sanitary Director; the City Physician; the Commissioner; a Sanitary Captain; the City Chemist; Medical Inspectors; the Sanitary Corps; Clerks and Interpreter.

Sanitary Director—General Qualifications.

§ 5.—The Sanitary Director shall be a physician of not less than ten years' practice and shall be skilled in sanitary science. He shall be appointed by the Mayor, by and with the advice and consent of the Council. He shall hold his office until his successor shall have been appointed and qualified.

Duties of Sanitary Director.

§ 6.—The Sanitary Director shall supervise all matters connected with the sanitary interests of the city, and shall perform such specific duties as may be defined in this ordinance, or designated in former ordinances to be performed by the Commissioner of Health except such duties as are prescribed for said Commissioner in this ordinance, and he shall have authority over all officers and employes in said department. And when at any time it shall become necessary to establish lake or land quarantine, he shall have command of such quarantine. He shall according to circumstances and season, issue such circulars of popular instruction as shall lead to the preservation of the public health.

Assistant Sanitary Director—Qualifications.

§ 7.—The Assistant Sanitary Director shall be a physician of not less than ten years' practice, and shall be skilled in sanitary science. He shall upon recommendation of the Sanitary Director, be appointed by the Mayor, by and with the advice and consent of the Council, and shall hold the office until his successor shall have been qualified and confirmed.

Duties.

He shall perform such duties as may be assigned him by the Sanitary Director. In case of the sickness, disability or prolonged absence of the Sanitary Director, he shall by direction of the Mayor, act in the stead and perform the duties of the Sanitary Director.

City Physician—Qualifications.

§ 8.—The City Physician shall be a physician of not less than ten years' practice in the State of Illinois, of which not less than five shall have been in the City of Chicago. He shall be appointed by the Mayor, by and with the advice and consent of the Council.

Duties.

He shall supervise the administration of the hospitals established by the city, including hospitals for contagious diseases, excepting quarantine hospitals. He shall prepare regulations for the government of police surgeons, ambulance physicians, resident physicians and superintendents of the city hospitals, in the performance of their duties and shall have immediate supervision of the city ambulance service, when established. He shall attend or cause an assistant to attend the sick in the city workhouse, calaboose, watchhouse, police stations or houses of correction, and shall attend such meetings as may be held by the Department of Health, and in case of epidemic, he shall render such assistance and coöperation, and perform such duties in connection therewith as the Sanitary Director may require.

Commissioner.

§ 9.—The Commissioner of the Health Department shall be skilled in business affairs and shall be appointed by the Mayor, by and with the advice and consent of the Council.

Duties.

He shall have supervision over all clerks of the Department except as hereinafter provided; and shall have charge of all accounts. He shall keep an accurate record of all receipts and expenditures and shall be responsible for all fees received. He shall keep the records of births, marriages and deaths, and issue burial permits under regulations to be made by the Sanitary Director. He shall disburse all monies, pay all officers and employes, make all purchases of supplies, and execute all contracts, but he shall make no purchase of sanitary or special appliances without the approval of the Sanitary Director.

Sanitary Captain.

§ 10.—The Sanitary Captain shall be a person accustomed to superintendence of workmen, and qualified to keep records. He shall be appointed by the Mayor on the recommedation of the Commissioner, and shall have the rank and pay of a Captain of Police.

Duties.

He shall be the custodian, and have charge of the storehouse of the Department with all property belonging thereto, including horses, wagons, carts, ambulances, fumigating apparatus and sanitary appliances of every kind belonging to the Department, and shall make a semi-annual return thereof to the Commissioner. The return shall show from whom the property was purchased or received, to whom issued, and the present condition thereof. No property of any kind shall be issued to any person except upon requisition duly approved by the Sanitary Director, Assistant Sanitary Director, City Physician, Commissioner or Chemist. He shall have charge of the Sanitary Corps and under the Department regulations, supervise their work.

Chemist—Qualifications.

§ 11.—The Chemist shall be a graduate in medicine, skilled in chemistry, pharmacy and bacteriology. He shall be appointed by the Mayor on the recommendation of the Sanitary Director.

Duties.

His duties shall be to have charge of the laboratory, and to conduct such chemic and bacteriologic investigations as he may from time to time be instructed to make by the Sanitary Director, to make test investigations of food products, milk, water, ice, beverages and drugs, and to make report thereof to the Sanitary Director.

Medical Inspectors.

§ 12. The Medical Inspectors shall be appointed by the Mayor on the recommendation of the Sanitary Director, but no person will be appointed Medical Inspector until after such examination as shall satisfy the Sanitary Director that the applicant is fully informed in the principles of sanitary science.

Qualifications.

Physicians holding the collegiate degree of Doctor in State Medicine, or its equivalent, will not be required to pass such examination.

Chief Inspector.

One of the said Medical Inspectors shall be specially skilled in the diagnosis of the exanthematous and contagious diseases, and shall be designated as Chief Medical Inspector.

§ 13. Medical inspectors, except the Chief Medical Inspector, will perform such service as may be required of them from time to time, and they shall be paid according to the service actually performed, on a schedule of pay to be prepared by the Sanitary Director and approved by the Mayor.

Sanitary Corps.

§ 14. The Sanitary Corps will consist of three divisions viz., first, those employed in the division of the City Physician as litter bearers, ambulance drivers and hospital attendants; second, milk, meat, food and other inspectors employed in the chemist's division; third, plumbing inspectors, fumigators, and persons employed in the work of placarding infected premises, and disinfection of the same, acting under the Sanitary Captain.

Uniform to be Worn.

§ 15. All members of the Sanitary Corps shall wear the uniform of their grade, and shall receive such monthly compensation as the Mayor may by order promulgate, as equitable for the services respectively performed by each class.

Clerks and Interpreter.

§ 16. There shall be employed in the Department of Health—clerks who shall be appointed after due examination into their fitness for such position, and they shall be assigned to such duty as the Commissioner may designate, *provided*, that the Sanitary Director is hereby authorized to employ one person as stenographer and clerk to serve under his immediate direction, and one person as interpreter and translator. No person shall be employed as translator who can not read correctly and converse in five modern languages to be designated by the Sanitary Director.

Repeal Provisions.

§ 17. So much of all previous ordinances as conflict with or in any way impair the operation of this ordinance are hereby repealed, and all provisions of law and ordinances relating to the Department of Health, the Commissioner of Health, the City Physician, the inspection of food, milk, ice and drugs, and miscellaneous ordinances relating to health, in Chapter XXVII, and numbered consecutively from section 1907 to section 2059 inclusive, of the revised laws and ordinances in force April 2, 1890, and the laws and ordinances from April 2, 1890, to July 10, 1894, being Chapter XXVII, numbered consecutively from section 5053 to section 5137 inclusive, shall, so far as they may be applicable, remain of full force and effect.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—FOREIGN.

Antwerp: June 1 to 8, 1 case, 1 death.
Batoum: June 4 to 18, 8 cases, 4 deaths.
Buda-Pesth: June 3 to 17, 1 case, 2 deaths.
Cairo: May 20 to 27, 6 deaths.
Calcutta: May 18 to 25, 56 deaths.
Dublin: June 16 to 23, 4 deaths.
Edinburgh: June 16 to 23, 2 deaths.
Havana: June 20 to 27, 3 deaths.
Liverpool: June 15 to 22, 1 death.
Leith: June 16 to 23, 3 deaths.
London: June 8 to 15, 19 cases, 1 death.
Manchester: June 8 to 15, 2 cases.
Montevideo: May 10 to June 1, 3 cases.
Odessa: June 8 to 15, 1 case, 3 deaths.
Paris: June 1 to 8, 1 death.
Rio de Janeiro: May 25 to June 8, 18 deaths.
Rotterdam: June 15 to 22, 4 cases.
St. Petersburg: June 8 to 15, 6 cases, 2 deaths.
Triste: June 8 to 15, 1 case.

SMALLPOX—UNITED STATES.

Ohio: Cincinnati, June 28 to July 5, 1 case.
New Jersey: Hoboken, June 22 to 29, 1 case (varioloid.)
Tennessee: Memphis, June 30 to July 6, 2 cases.
Missouri: St. Louis, June 22 to 29, 3 cases.

CHOLERA.

Calcutta: May 18 to 25, 47 deaths.
Hiogo: June 8 to 15, 13 cases, 7 deaths.

YELLOW FEVER.

Cienfuegos: June 23 to 30, 1 death.
Havana: June 20 to 27, 10 cases, 5 deaths.
Rio de Janeiro: May 25 to June 8, 30 deaths.
Santos: May 24, to 30, 33 cases, 18 deaths.
Vera Cruz: June 20 to 27, 5 deaths.

The following letters have been received from Dr. R. Cleary, Sanitary Inspector Marine-Hospital Service at Rio de Janeiro, Brazil:

CONSULATE-GENERAL OF THE UNITED STATES OF AMERICA.

RIO DE JANEIRO, June 4, 1895.

Sir:—I have the honor to transmit report for week ended June 1, 1895.

There were 8 deaths from accesso pernicioso, a decrease of 6; 9 from yellow fever, a decrease of 14; 6 from smallpox, an increase of 2; 6 from enteric fever, the same as in the foregoing week; 2 from beriberi, none in the former week; 2 from measles and one from whooping cough, the same as in the previous week; 1 from influenza; 2 from choleriform diarrhea, an increase of 1, and none from other choleraic diseases.

The total number of deaths from all causes was 279, a decrease of 64 from the foregoing week.

I am happy to say that the above shows a decided improvement in the sanitary condition of the town and port.

Cholera.—I hear nothing more of this disease, though occasionally a death from some choleraic form of disease is reported, which I do not think means much.

Yellow Fever.—The few sporadic cases of this disease are steadily declining in number, so that there is nothing here now more than usual for the time of year.

RIO DE JANEIRO, June 11, 1895.

Sir:—I have the honor to inclose report for week ended June 8, 1895.

There were 9 deaths from accesso pernicioso, an increase of 1 over the foregoing week; 21 from yellow fever, an increase of 12; 12 from smallpox, an increase of 6; 4 from beriberi, an increase of 2; 3 from enteric fever, a decrease of 3; 2 from measles and one from whooping cough, the same as in the foregoing week; 1 from choleriform diarrhea, a decrease of 1; 1 from diphtheria and 1 from leprosy. From all causes there were 350 deaths, an increase of 71 over the previous week.

The increase in the number of deaths is great, and I do not know what to attribute it to, unless to the damp weather.

Yellow Fever.—The number of deaths from this cause more than doubled in this week, but it is not unusual at this time of the year to have rises and falls in the number of deaths until the end of June, when the disease becomes almost extinct, as a rule, but it is never entirely so in this town. There is no fear of an epidemic at this time of the year.

Cholera.—No more cases of this disease have appeared, either in the interior or in the town. The one case of choleriform diarrhea reported may or may not have been cholera. I doubt it.

Smallpox.—There is always an increase in the so-called winter season, which is now beginning, and the total of 12 deaths from this cause is not excessive, as they occurred at scattered points, and the disease does not appear to be extending epidemically.

Leprosy.—It is well known that there are many lepers in the interior of the State of San Paulo, and this case may have come from that part of the country.

Measles and Diphtheria.—As for these diseases they are not epidemic here, and have not been since I knew the place, but sporadic cases do appear, usually brought from outside.

MISCELLANY.

Dr. Ernest Laplace, LL.D.—At the last annual Commencement of Georgetown University, Washington, D.C., the degree of LL.D. was conferred on Dr. Ernest Laplace, Professor of Surgery in the Medico-Chirurgical College of Philadelphia.

Dr. Bransford Lewis, of St. Louis, having resigned his position with the Missouri Medical College, has been elected Professor of Genito-Urinary Surgery at the College of Physicians and Surgeons; and Genito-Urinary Surgeon to the Baptist Hospital.

A Corporation with a Soul.—The Metropolitan Telephone Company of New York has published the following humane regulation, adopted Dec. 31, 1894: "Any person may be granted free service at any public pay station of this company for the purpose of securing an ambulance or medical assistance necessitated by some accident in the immediate vicinity of such station. A statement of the circumstances, signed by the pay station agent will be accepted as a basis for remitting the charge. Pay station agents should secure, if possible, the signature of the person using the instrument for such purpose." It would be well if all other companies would make their service "as free as air," as an assistance to the emergency or ambulance work of our cities.

Correct Addresses Wanted.—Will some one please give the correct addresses of the following: Dr. George Baine, Washington, D. C.; Dr. Geo. Bensen, Philadelphia, Pa.; Dr. B. J. Byrne, Baltimore, Md.; Dr. W. Balgrous, Baltimore, Md.; Dr. W. J. Craigen, Baltimore, Md.; Dr. W. F. Hines, Baltimore, Md.; Dr. G.M. Kober, Baltimore, Md.; Dr. S. W. Lotto, Philadelphia, Pa.; Dr. F. Meyer, Baltimore, Md.: Dr. W. L. Nosbeen, St. Louis, Mo.; Dr. J. R. Thomas, Baltimore, Md. These names were added to the mailing list as new members of the ASSOCIATION, but their JOURNALS have been returned by the postmaster, requesting better directions for the delivery of same. All JOURNALS, especially those sent to the larger cities, would reach their destination more promptly if the street and number were added, and we respectfully request members to furnish us with these in cases where they are omitted.

"Tuckahoe," or the American Truffle.—The scientific writer for the New York *Independent* has collated the following facts regarding the so-called "Indian bread," or "Indian loaf:"

"Attention is being called in some of our scientific serials to certain species of cryptogamic plants, which grow wholly beneath the surface, and which might perhaps be popularly called underground puffballs. Like all the puffball family they are nutritious, and if they could be produced in large numbers would be valuable commercial articles of human food. The best known American species is found southward, and is known as 'Indian bread' from its nutritious properties, and by the Indians called 'tuckahoe.' The average size is about that of one's fist, but often much larger. They are believed to be somewhat abundant, if one only knew how to locate them; but it is only now and then that specimens can be seen outside of museums. In the Old World the best known of this class is the truffle. But a difficulty was found in locating them until a race of dogs were trained to indicate by scent where the truffle lay buried, when the truffle-gatherer would dig up the little delicacy. These dogs are the chief stock in trade of the collectors, and they rarely part with the animals. The truffles seem to grow the most naturally under oak trees, or in oak forests. For all the large number annually collected the product does not diminish, though, so far as known, the collectors take no special care to extend the growth by artificial methods. There have been statements of the truffle being found in America, but it has not been clearly shown. It is thought that the tuckahoe may be more abundant than it seems to be, or would be made more abundant if the roots it best loved to feed on could be definitely ascertained, and such trees in the region where the fungus is known to grow could be in some measure protected. When assured of an abundant annual product, there might be no difficulty in training 'tuckahoe dogs' as well as 'truffle dogs' to aid in harvesting the crop."

Emergency Rations for the Army.—The Subsistence Department of the Army has received reports from two of the boards convened to determine the best form of an emergency ration. A board consisting of three line officers, one medical and one subsistence officer, was convened in each of the military departments to consider and experiment on this subject. According to the *Army and Navy Journal*, the Commissary General of Subsistence declines to give out the reports of the boards for publication at the present time. It is his desire to have the findings on this important question remain secret until all the organizations have submitted their views. It is said that the two reports received show great research and make many valuable recommendations. What will be done in the matter will be to take from each report any recommendation it may contain which General Morgan may consider worthy of adoption. It is understood that the New York board is receiving a large number of samples of condensed foods from manufacturers and others interested in their adoption in the service. Returns from other boards indicate similar activity on the part of dealers. It is expected that all the reports will be received before September next and that then the matter will be decided. The Adjutant-General has received a long report on the subject of the emergency ration from Capt. J. H. Dorst, 4th Cavalry, military attaché to our Legation at Vienna. He has forwarded samples of the Austrian war rations, viz., cans containing a beef stew; tablets of concentrated soups; one of parched flour, another of peas. Other articles sent are meat and other sausages, with a mixture of vegetables intended for making soup; also compressed tablets of roasted and ground coffee prepared with the proper percentage of sugar. The war rations are of several classes: the full ration, the supplemental "nachshub" ration, the reserve ration for the period during and immediately following mobilization, the reserve ration for field operations, and a railroad ration. All war rations are issued in kind and the full ration is always issued when practicable. The nations of Europe are apparently a long way ahead of us in this matter, but the present activity of our Subsistence Department will demonstrate the faults of our ration as a war ration and enable us to adopt improved methods of subsistence for the future.

A Great Work on Hippocrates.—The London *Lancet* notes with gratification that both French and German scholars are at work upon a Hippocratic revival. Dr. Michel Sourlangas, for the French, has given a study of the ideas of Hippocrates regarding infection and the antiseptic treatment. The author gives the following among the conclusions reached by him in his monograph: first, that Hippocrates made medicine a science, and that on this ground he merits the title rather of Legislator than of Father of the Healing Art; second, that most of the infectious diseases were known to him—the *rôle* he attributes in their production to the air and the water constituting in fact a scientific study in etiology; and third, that he availed himself in treatment of substances whose virtues as microbicides are undeniable.

But of the great German work the *Lancet* writes as follows:

"But more important than these incidental excursions into the fascinating field of ancient medicine is the new German translation of the entire Hippocratic collection by Dr. Robert Fuchs, of which the first volume is now before us. In this the reader will readily discern that Dr. Fuchs is a more learned scholar than his predecessors, and that he has also the advantage of belonging to a sounder, more scientific medical school. The language in which he re-clothes the Greek author is that of modern medicine, and the interpretation he gives is such as was possible only to one who has profited by the vast accessions to our knowledge of antiquity by the archæologist, the epigraphist, and the special investigator of antique life and culture. His familiarity with such monographs as the well-known 'Die Botanik Homers' and such monumental treatises as that of Berendes on the 'History of Pharmacy' will illustrate our meaning. The undoubted advantage he possesses over Littré, Adams and Ermerins is also manifest in the notes, which from their richness in expository matter contribute to make this book an encyclopedia of Greek medicine. The first volume comprises the introductory writings of Hippocrates, then the general treatises, then that on dietetics, and, finally, the general pathology and the prognostics. The second volume will include the special pathology and therapeutics, and will be ready next summer. The third, completing the work, will appear in September or October, and will deal with therapeutics (second part), surgery, ophthalmic medicine, gynecology, treatment of infancy, and the Hippocratic correspondence. The entire publication will indicate the high-water mark attained by European research and scholarship in the '*mare magnum*' of Greek medicine, and our only regret in calling attention to it is that, since Francis Adams published his translation some fifty years ago for the Sydenham Society, British learning has done so little for a subject in which it has in past centuries shown its ability to excel."

Diagnosis Tags for Use on the Battle-field.—During the past year much attention has been given by Army surgeons to the perfection of a diagnosis tag for field service. Drs. Havard, Woodhull, Hoff, Worthington and Forwood have each presented models. The tag, model of 1895, issued from the Surgeon-General's office is of tough cloth paper and bears more resemblance to the Forwood tag than to the others. It is five inches long by two and three-quarter inches wide, with a bright red border, three-sixteenths inch deep, on one side, and a dark blue border of the same depth on the other, each of which can readily be torn off along a line of perforations. The tags are put up in booklets of twenty-five with a few additional slips of white paper on which the word "urgent" in large blue capitals is printed. Each tag is provided with a slender copper wire by which it may be attached to the clothing. On the inside of the

covers are printed "Directions" and "Remarks" as follows: "*Directions:* 1, the diagnosis tag is to be attached as soon as practicable to every sick or wounded man on the battle-field. The diagnosis must, as a rule, be entered by a medical officer. 2, the red border is left on and the blue torn off when from shock, severe injury or other cause the soldier is at the time unable to endure transportation. 3, the blue border is left on and the red torn off when the solder requires transportation and can be moved. 4, both borders are torn off when the soldier's disability is slight or such that he can walk to the dressing station or hospital. 5, under 'diagnosis' the medical officer will give a brief and intelligible description of the seat and character of the injuries or the nature of the disease and sign it. 6, under 'Treatment' is to be recorded what is given, especially anodynes and stimulants, and what is done from time to time by medical officers or attendants, and, when proper, it may be indicated what further is needed and the urgency of the case. If necessary for brevity the following characters may be used to save time and space: X, temporary dressing applied; =, permanent dressing applied; O, operation needed (amp., liga., etc.); OO, operation urgently needed; X within O, operation done and temporary dressing applied; = within O, operation done and permanent dressing applied; XO, temporary dressing applied and operation needed; XOO, temporary dressing applied and operation urgently needed. *Remarks:* The urgency tag is to be used in addition to the usual diagnosis tag as a conspicuous mark to call attention to some case requiring immediate assistance. The date is important and should never be omitted. When narcotics or stimulants are administered the quantity given and the time should always be stated. If practicable the name, rank, company and regiment of the sick or wounded man should be entered upon the diagnosis tag." The diagnosis tag is an elaboration in time of peace for war service which will probably be thrown aside when the war time comes, except in special cases. A wounded man who is able to walk to hospital and to tell the surgeons there all about himself will not wait in the arena of danger for a medical officer to write all this information on a tag for him; and in the cases of men who are badly wounded and unable to give an account of themselves the Hospital Corps men who carry them to the hospitals may be intrusted with the needful instructions. If the tag should come into use in the field as at present intended, it seems an unnecessary loss of time for the medical officer to enter the name, company, rank and regiment of each wounded man; in fact, if the man is unconscious, difficulty may be found in obtaining this information. To permit of the identification of wounded soldiers at the hospital each man in time of war, as recommended by Dr. Forwood, and as is customary in the French Army, should have his name and command engraved on a small medal, which should be worn around his neck under his clothes. There would then be no need to enter this information on the tag.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended June 22 is as follows: number of deaths (still-births not included): white, 35; colored, 35; total, 70. Death rate per 1,000 per annum, white, 9.91; colored, 20.92; total, 13.45. Death rate per 1,000 per annum for corresponding week last year, 33.93. Still-birtbs: white, 5; colored, 3; total, 8.

DR. S. C. BUSEY.—Dr. Busey, the President of the Medical Society of the District, has entirely recovered from his severe injury and left on the 29th ult., for Narragansett Pier. The profession can well congratulate themselves on the recovery of one who has done so much to advance medical science. The local physicians look forward with pleasure to his return to the "charge" of the Medical Society in the autumn.

MEDICAL SOCIETY OF THE DISTRICT.—The regular meeting of the society was held on 1st inst. Only business matters were discussed, and on motion it was decided to hold the next regular meeting on Wednesday October 2. The regular monthly essayists for the year 1895–1896 were announced by the Committee on Essays.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The new fire escapes have been completed, the lower basement repainted and the steam elevator replaced by an electric one. The annual report with an official history of the institution since its foundation, will be ready for distribution in a few days. The term of service of Dr. James H. Church, the resident physician expired June 30, and Dr. Peter M. Smith the first assistant, was promoted to the position of resident physician. Dr. E. D. Shortlidge was promoted to be first assistant, Dr. Francis M. Furlong having passed first in the competitive examinations was appointed second assistant resident physician. Dr. Church will practice medicine in Washington City and carries with him the best wishes and confidence of each member of the hospital board.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 27, 1895, to July 5, 1895.

First Lieut. CHAMPE C. MCCULLOCH, Asst. Surgeon, is granted leave of absence for one month, to take effect about July 1.

Major BLAIR D. TAYLOR, Surgeon, is granted leave of absence for one month, to take effect between July 1 and 10, with permission to apply for an extension of ten days.

First Lieut. FREDERICK P. REYNOLDS, Asst. Surgeon, now at Ft. Sam Houston, will proceed to Ft. Bliss, Texas, not later than July 1, and report for temporary duty during the absence on leave of Major BLAIR D. TAYLOR, Surgeon.

Capt. CHARLES M. GANDY, Asst. Surgeon, is granted leave of absence for two months, to take effect upon his relief from duty at Ft. Yellowstone, Wyo.

Lieut.-Col. DAVID L. HUNTINGTON, Deputy Surgeon-General, is granted leave of absence for one month, to take effect upon his relief from duty in the Dept. of the Colorado.

Capt. CHARLES B. EWING, Asst. Surgeon, is granted leave of absence for two months.

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended June 30, 1895.

Surgeon GEORGE PURVIANCE, to proceed to Delaware Breakwater Quarantine as inspector, June 19, 1895.

Surgeon JOHN GODFREY, detailed as chairman of board for physical examination of candidates, revenue cutter service, June 17, 1895.

Surgeon FAIRFAX IRWIN, detailed as chairman of board to consider necropsy reports, June 15, 1895.

Surgeon H. R. CARTER, granted leave of absence for fifteen days, June 24, 1895.

P. A. Surgeon C. E. BANKS, detailed as member of board to consider necropsy reports, June 15, 1895. Detailed as member of board for physical examination of candidates, revenue cutter service, June 19, 1895. Detailed as chairman of board for physical examination of officers, revenue cutter service, June 27, 1895.

P. A. Surgeon J. J. KINYOUN, detailed as member of board to consider necropsy reports, June 15, 1895.

P. A. Surgeon G. B. YOUNG, granted leave of absence for thirty days, June 19, 1895.

P. A. Surgeon B. W. BROWN, detailed as recorder of board for physical examination of officers, revenue cutter service, June 27, 1895.

P. A. Surgeon M. J. ROSENAU, detailed as recorder of board to consider necropsy reports, June 19, 1895.

Asst. Surgeon J. A. NYDEGGER, granted leave of absence for five days, June 19, 1895.

Asst. Surgeon W. J. S. STEWART, detailed as recorder of board for physical examination of candidates, revenue cutter service, June 19, 1895.

Asst. Surgeon RUPERT BLUE, detailed as recorder of board for physical examination of candidates, revenue cutter service, June 17, 1895.

Asst. Surgeon EMIL PROCHAZKA, granted leave of absence for twenty-six days, June 27, 1895.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.

Bellwood, W. S., Orion, Ill.; Baker, E. D., Stone Church, N. Y.; Bigelow, C. P., Grand Rapids, Mich.; Bryan, J. H., Washington, D. C.; Bell, F. M., Kelso, Washington; Bettman, B., Chicago, Ill.

Connell, J. M., Chicago, Ill.; Chambers, J. H. & Co., St. Louis, Mo.; Cone, Andrew, New York, N. Y.; Chicago Policlinic, Chicago, Ill.; Clark & Sons M. C., Albany, N. Y.; Cain, J. S., Nashville, Tenn.

Doyle, Gregory, Syracuse, N. Y.; Duffield, S. P., Detroit, Mich.; Daggett Table Co., Buffalo, N. Y.; Deaver, John B., Philadelphia.

Eliot, Johnson, Washington, D. C.

Fassett, C. W., St. Louis, Mo.; Ferguson, E. D., Troy, N. Y.; French, Pinckney, St. Louis, Mo.

Graff, O., Chicago, Ill.; Ginrich, E. H., Philadelphia, Pa.; Griffith, L. M., Bristol, Eng.; Gibson, Wm., Alexandria, Va.

Hawley, D. C., Burlington, Vt.; Hummel, A. L., Philadelphia, Pa.; Hollingsworth & Mather, St. Louis, Mo.; Haldenstein, J., New York.

Kohl, Julius, Belleville, Ill.

Lee, Elmer, Chicago, Ill.; Leach, R. B., Paris, Tex.; Lehn & Fink, New York, N. Y.

McCoy, Wm. A., Madison, Ind.; Mogk, W. A., Ann Arbor, Mich.; Magruder, G. L., Washington, D. C.; Marcy, H. O., Boston, Mass.; Mayo, W. J., Rochester, Minn.; McLauthlin, H. W., Denver, Colo.; Mills, J. T., Jersey, Ohio; Milbourne Advertising Agency, Baltimore, Md.

Northwestern University Medical College, Chicago, Ill; Nicholson, W. A., Franklin, Pa.; National Vaccine Establishment, Washington, D.C.

Phospho-Albumen Co., Chicago, Ill,

Rogers, F. T., Providence, R. I.; Rudy, Martin, Philadelphia, Pa; Rowley, W. S., Chicago, Ill.; Rhoads, Thos. L., Philadelphia, Pa.; Russel, J. W., Longtown, Mo.; Reeves, J. E., Chattanooga.

Sayre, R. H., New York, N. Y.; Smith, Q. Cincinnatus, Austin, Texas.; Shurtleff, David, Boston, Mass.; Street, David, Baltimore, Md.; Seibert, W. H., Steelton, Pa.; Smart, Chas., Washington, D. C.; Sudduth, W. X., Minneapolis, Minn.; Stechert, G. E., New York, N. Y.; Sanders, Enno M. W. Co., St. Louis, Mo.; Storer, Horatio R., Newport, R. I.

Tiffany, F. B., Kansas City, Mo.

Wagoner, Joseph, Ravenna, Ohio; Wilson, D. C., Ironton, Ohio; Woodbury, Frank, Glen Summit, Pa.; Wyman, Hal. C., Detroit, Mich.